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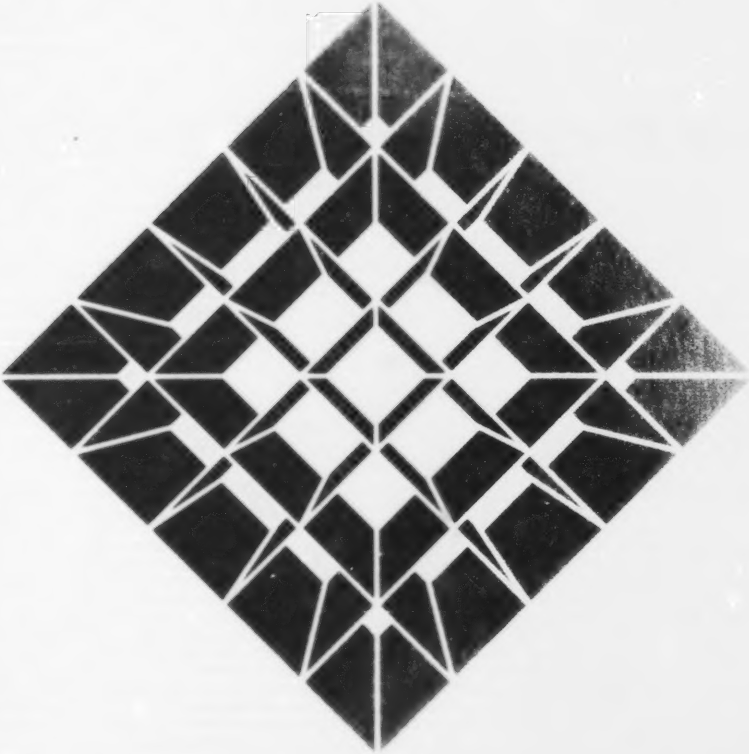
THE
PERSPECTIVE 2000 CONFERENCE

A Synopsis



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A Synopsis

Canadian Cataloguing in Publication Data

Main entry under title:

The Perspective 2000 conference: a synopsis

Issued also in French under title: La conférence
perspective 2000, un synopsis.
ISBN 0-660-13574-4
DSS cat. no. EC22-168/1990E

1. Economic forecasting – Canada – Congresses.
2. Canada – Economic policy – 1971 – Congresses.
3. Canada – Economic conditions – 1971 – Congresses.
I. Newton, Keith. II. Voyer, J.-P. (Jean-Pierre), 1955-.
III. Economic Council of Canada.

HC113.P47 1990 330.971'0647 C90-098603-4

The Perspective 2000 Conference

A SYNOPSIS

This Synopsis highlights the main findings of the Proceedings of the Conference by the Council that is available at the Canadian Government Publishing Centre and at associated bookstores and booksellers, under Catalogue No. EC22-167/1990E.

Le synopsis est également disponible en français.

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Available in Canada through

Associated Bookstores
and other booksellers

or by mail from

Canadian Government Publishing Centre
Supply and Services Canada
Ottawa, Canada K1A 0S9

Catalogue No. EC22-168/1990E
ISBN 0-660-13574-4

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Foreword

Anniversaries are usually a time for feasting and for nostalgia. In celebrating a 25th anniversary, the Economic Council of Canada took a different tack. We commissioned an intellectual feast of papers focusing on the social, political, and economic challenges Canadians are likely to face in the year 2000 and beyond.

The Council had two objectives: to create an intellectually stimulating event for the participants in the conference; and to create a background against which we could develop our research agenda for the 1990s. This, in turn, would help us to meet our responsibility to provide Canadians with pertinent and forward-looking advice on how to improve the country's economic performance.

The project was designed to incorporate three features – the global perspective, the linkages between economics and other global developments, and the longer-term view.

First, four major building blocks were identified. In Block I, attention was focused on global issues and on the interrelationships among the physical, geopolitical, and economic systems in global development. Block II considered the structure and competitiveness of the Canadian economy against the backdrop of the global forces set out in Block I. Certain key features of Canada's competitive prospects – namely, the innovations in human-resource development and organizational design that must accompany technological advance in the pursuit of productivity gains – were the focus of Block III. Then, in the final block, attention turned to the process of the decision making and the institutional structures required to support the formulation and implementation of the policy framework for an evolving political economy.

Once the authors of the papers for these four building blocks had been identified, they and the discussants were invited to attend a one-day workshop in April 1988, where there was a lively discussion of the proposed approach to the issues. Once the papers were completed, they were presented at a conference where the authors and commentators set out their views for discussion by a representative group of Canadians from the labour, business, academic, and other communities. At that conference, known as Perspective 2000, on 30 November and 1 December 1988, we were fortunate to involve five of the Council's past Chairmen – Arthur Smith, André Raynauld, Sylvia Ostry, George Post, and David Slater.

The next stage of the project was the communication of its main messages and conclusion. Many participants at the conference encouraged us to convey the material to a much wider audience. Accordingly, during 1989, we organized nine workshops across Canada, many of which provided valuable opportunities to reflect upon the regional repercussions of the ideas and trends identified at the conference. In addition, the full text of the papers, along with summaries of the four main blocks, are now published by the Council as *Perspective 2000: Proceedings of a Conference Sponsored by the Economic Council of Canada*.

This volume, or *Synopsis*, provides the reader with a briefer overview of the major themes, views, and conclusions of the larger conference volumes. It has been prepared by Keith Newton and Jean-Pierre Voyer, senior staff members who actively participated in the development of the program, preparation, and editing of the proceedings, as well as the workshops. Tom Schweitzer also made a valuable contribution to the preparation of this synopsis and the proceedings. I would like to acknowledge the valuable help of our advisory committee, chaired by Yves Guérard, a member of the Council, and to thank the authors, the discussants, the participants, and all the members of the Council staff who made this project a worthy celebration of the Council's first 25 years.

Judith Maxwell
Chairman

Introduction

What challenges, opportunities, and uncertainties await us as we enter the 21st century? Simply daring to try to answer this question requires a certain amount of courage. The current world situation is evolving so rapidly and has become so complex that it is already extremely difficult to grasp the ramifications of current events, much less predict the near future. The political upheavals of recent months are a good example; the speed with which events overtook the world is simply astonishing. The new political and economic openness in Eastern Europe presents a whole new range of possibilities for the future. It may not be far-fetched to speak of the rise of a new international order, one with a better chance of maintaining peace and solving the major problems facing the world. At the time the Perspective 2000 Conference was held, no one would have dared predict the historic events that we have so recently witnessed.

In other areas, unfortunately, the future course of events seems quite certain if current trends are allowed to continue. In terms of the environment, the continuing degradation of a number of ecosystems is a source of increasing concern. Only a few years ago, apocalyptic visions of planet-wide devastation centred on the possibility of a major nuclear conflict. Today, we are faced with the possibility that the world may be destroyed simply as the end result of current human practices – out-of-control population growth leading to deforestation and desertification of vast areas of the globe, and the frenzied pursuit of material well-being leading to pollution and contamination of our water, air, and soil.

While there is no doubt that predicting the future is a difficult and often thankless task, there are good reasons for attempting to chart the possibilities and probabilities for our ecological, political, economic, and demographic systems over the next quarter century. Such an exercise enables us to make a more enlightened assessment of current policy and of the consequences of current actions. Other salient questions include: What will be Canada's place in the new global context that will emerge from these transformations? How urgent is the need for new policy approaches? And what measures will be needed to cope with these transformations, both for Canada and the planet as a whole?

I The Global Setting

To clearly establish the background to these discussions, the Perspective 2000 Conference began by examining the long-run prospects for the physical setting of our planet, including the major demographic, technological, and environmental trends. Against this backdrop were superimposed probable world developments in the geopolitical and economic spheres.

A handy point of reference is provided by the "traditional" visions of the 21st century, which are based on the results of simply extrapolating the trends of the last several decades into the future.

Population Explosion

World population is currently about five billion and is continuing to grow, though at a lower rate than the 2 per cent per annum of recent decades. Most forecasts suggest a population of 10 billion a century from now. This implies a growth rate significantly lower than 1 per cent per annum – rather similar to that prevailing a century ago. However, the low growth rate of that past was due to a high-mortality rate. In his paper, William Clark quotes demographic authorities who maintain that we can confidently expect impressive improvements in the quality of human life. For instance, conventional wisdom expects the world infant mortality in 2025 to fall to slightly less than half of its rate in Europe in 1950. At the same time, life expectancy at birth for the world as a whole would increase to 71 years as compared to the European figure of 65 years in 1950.

At the same time, however, this population will be distributed extremely unequally over the world's surface, with important consequences for the geographical concentration of economic activities and so for the impact these activities will have on the environment. Where Africa accounted for 11.6 per cent of the world's population in 1985, it will account for 19.7 per cent by 2025. Over the same period, North America's share of the world population will drop from 5.4 to 4.3 per cent.

The Contributions of Science and Technology

Will the Earth be able to support population growth of this magnitude without a severe drop in living standards? The scientific and technological discoveries of the future may easily make commonplace what seems impossible today. For example, Clark quotes expert opinions which indicate that agricultural production is likely to increase fourfold over the next 100 years. Most of this expected increase in agricultural output will come from new technologies – improved genetic stocks, cultivation, fertilizers, and pest control – rather than from expansion of usable land. Nor is increased consumption per capita of primary resources and materials a necessary condition for a rising standard of living. It is perhaps here that developments in science and technology show their most amazing impact. In the United States, energy use per unit of real GNP more than doubled between 1880 and the early 1920s, but then increasing efficiency of use reversed the curve and, by the early 1980s, it had declined to the level of the 1880s. A part of the decline was caused by the oil-price shocks of recent decades, but technology has shown its ability to rise to the challenge. Despite the conventional forecasts that energy requirements will increase sixfold in the next 100 years, ecological and economic pressures should serve to channel long-run trends in the direction of improved energy efficiency worldwide.

While the demand for materials will continue to grow at an astonishing rate, Clark also foresees a decline in the quantity of material required per unit of output. Overall, the quantity of industrial materials required for each unit of output has been halved since 1900, and this "dematerialization" phenomenon should continue.

The 1950s and 1960s experienced many radical technological innovations. But since the 1970s, the emergence of new information technologies has created, according to economist Jacques Lesourne, nothing less than a fundamental change in the technical paradigm that transforms the relations between the technical system, the economy, and society. This paradigm change may well be followed by another one rooted in the rise of biotechnology.

Thus the possibility of an attractive future is there, but is it realistic? So many things could go wrong. While mesmerized by the unimaginable horrors of a nuclear war, humanity tends to forget what terrible sufferings and devastation the by-now completely outdated military technology of World War II was able to inflict. Furthermore, 45 years without a major armed clash between the leading world powers is an historically unique phenomenon. Must history repeat itself? Even assuming peace, will humanity be able to develop the international institutions and rules of the game that are needed to take full advantage of the new economic and technological possibilities?

The Global Geopolitical Context

On the whole, political scientists William Maynes and John Kirton think that armed conflict between the leading world powers will be avoided. The nuclear stalemate is expected to continue and, according to Maynes, "it is difficult to imagine any rational government launching a nuclear attack that could result in a nuclear response." True, the economic, political, and military predominance of the United States has been steadily declining since the end of World War II, and historically such declines of the hegemony have led to major wars. But Kirton thinks that this time around mankind may be luckier. The rising economic powers (Japan, Germany, France, Italy) appear reluctant to take on the security mantle worn by the United States since World War II, and are on the side of the United States in the major international arguments. Nor is the United States likely to retreat into isolationism and protectionism.

For these authors, recent technological developments act in favour of global peace. Advances in camera miniaturization, satellite transmission, and direct-broadcast satellites make it easier for television to get international developments and stories in the air quickly and to reach wide audiences. The internationalization of television and the spread of literacy are making populations more knowledgeable in international affairs and less prone to defer to their rulers. Together with increased respect for human rights, that is one of the major changes that is occurring right around the world. The more casual attitude towards authority will have important consequences for the respective spheres of influence of the United States and the Soviet Union. Generally speaking, the hegemonic power of these countries is on the wane. These trends act, on the whole, in favour of peace. But, it remains to be seen whether such optimism does not underrate the danger of a charismatic master of the media whipping up popular sentiment to a degree that becomes a danger to international peace. It is instructive to recall Hitler's mastery of the radio in the 1930s. But if this danger can be avoided, we can hope for a reasonably peaceful future.

The developed western countries should gradually reduce their worldwide military engagement. This will occur as the Soviet Union reduces its aggressive international stance, but also because the economic power of the Third World will continue to grow and with it, its resistance to the western industrial powers. The danger is that the military disengagement of the West will go hand in hand with a reduced effort to help the non-industrial nations' economic development. The communist states will have their hands full with their domestic problems. The creation of an efficient economy, the democratization of the political system, defusing or accommodating the nationalism of the satellites and national minorities, the rapprochement with the West: all these are challenges of gigantic magnitude which would test the mettle of even the most able communist politicians and which will leave little energy and resources for external adventures. With respect to Third World countries, they will be preoccupied with the creation of political order that is the precondition for economic development.

Economic Perspectives

Even if a certain optimism about peaceful political development is justified, would this be sufficient to guarantee the *worldwide* improvement of living standards of an increasing population? Here the trends of the recent decades give a more dubious answer. It is true that the diffusion of modern technology and increasing economic interdependence among nations have led to converging levels of productivity and per-capita production in the industrialized and newly industrialized countries, which are gradually moving towards U.S. levels. But this convergence does not extend to all nations. Many South American, and particularly Sub-Saharan African nations, are falling further behind the leading industrial nations. In these cases, the gaps are widening rather than narrowing.

The converging countries possess the ability and willingness to adopt technological change and also display political stability. But will they show the degree of economic openness needed to make the most of the economic opportunities science and technology provide? Lesourne observes that the United States found itself in a predominant position after World War II, but since then we have been witnessing the gradual emergence of a multipolar world economy that parallels the political multipolarity mentioned above. The United States and Japan are already centres of economic influence, with the possible development of the European Economic Community into a third pole. The future relationship among this triad (and possibly with a fourth block consisting of the communist countries) will be of crucial importance to the economic development of the coming decades. Lesourne offers three scenarios for the future world economy, focusing on the major policy issues in the years to come. All three scenarios are based on the fact that the United States is currently suffering a substantial and prolonged deficit in the government and foreign current accounts.

In the first scenario, the United States tries to reduce its foreign account deficit by protectionist means. This reduces imports from Asia and Europe. Japan and the East Asian NICs try to recoup their loss by intensifying their exports to Europe, whereupon Europe itself adopts protectionist policies, forcing Japan to concentrate on the Asian and Third World markets. This scenario would restrict international economic growth. The United States would lose relatively little, provided it maintained good relations with OPEC and Latin America, but Japan would not be able to make up in East Asia all its losses in the U.S. and European markets. The EEC would suffer most and has the biggest interest in preventing this scenario from coming true. In this scenario, Canada would have to decide whether to follow a policy relatively independent from that of the United States by developing its trade relationships with Japan and the Third World, or to form with the United States a truly North American economic community.

In the second scenario, the industrialized nations remain relatively open to international trade, but little headway is made on macroeconomic cooperation among governments, and the actions taken by the central banks have only temporary effects on exchange rates. In this case, the continuing U.S. balance-of-payments deficit would lead to a sharp fall of the dollar, which would, with a further lag of several years, reduce the deficit substantially. This, in turn, could induce a substantial improvement in the currently depressed expectations and lead to a strong recovery of the U.S. currency. Such an uncontrolled roller-coaster path of exchange rates, trade flows, and foreign balances would necessarily reduce the economic growth capability of the industrial nations. As Canada's currency is closely tied to the U.S. dollar, scenario two implies big fluctuations against the Deutsche mark and the yen. This makes the planning of purposeful expansion of multilateral international trade very difficult.

The third scenario posits extensive cooperation among governments that serves to stabilize exchange rates and trade flows. This scenario assumes that governments decide to give events beyond their borders a higher priority. The trigger could be a deep recession in the United States whose effects spread into the world economy. A return to more balanced trade would reduce the incidence and severity of trade disputes and would likely favour freer trade. This scenario offers Canada the best opportunities for diversifying its foreign economic relations.

Even international agreement on macroeconomic cooperation would not be sufficient to exploit economic opportunities to the maximum. Almost every nation impedes the expansion of international trade by means of tariff and nontariff barriers invoked in the name of true or pretended concerns about national security. Internationally acceptable compromises between competition and national security will have to be worked out. Also, international competition may well lead to gigantic multinational corporations with market power on a global scale. It will be necessary to establish an international code for preventing abuses of economic dominance. These microeconomic questions are all the thornier, because few satisfactory solutions to them have been found even on a national scale, let alone on the international one.

The New International Order

How will the major powers rebuild the international order they have inherited in order to take into account the profoundly different world economic and geopolitical environment?

Kirton pointed out that the current institutions (the General Agreement on Tariffs and Trade (GATT), the International Monetary Fund, the World Bank) reflect the power relationships of the time when they were founded shortly after World War II, and their structure and modus operandi have been increasingly outdated. For instance, the Security Council of the United Nations provides a veto for the leading victorious powers of war, withholding it from the new economic superpowers, Japan, and West Germany. GATT finds it increasingly difficult to deal with the increasing tendency for governments to manage their trade through greater use of nontariff barriers. Nor does GATT properly reflect the rapidly growing importance of services and financial flows.

According to Kirton, the role of the United Nations in the major accomplishments of the past two decades has been secondary. From the viewpoint of the international order, organizations such as Greenpeace and Amnesty International (and even rock concerts!) have likely had more influence than the United Nations. One of the primary failures of the United Nations has been its inability to integrate countries such as Japan, Germany, Italy, India, and China into the international order. The resources of these countries will be needed for the system to have any hope of reaching the year 2000 intact.

The international community must decide whether it prefers to implement a reform program designed to enhance the efficiency and relevancy of present international institutions, or instead to watch the international system fragment into regional blocks. A certain trend in the latter direction can already be discerned. The links the European Community is trying to forge with African nations, the growing interest of Japan in South-East Asia, and recent U.S. actions in the Caribbean are all examples of the efforts the three largest blocks are making to consolidate their economic turf.

Future efforts to construct an international order will probably centre on developing a new generation of postwar institutions, such as the seven-power (G-7) summits. The 1990s will challenge the summit system to transform itself into an institution that can accommodate such important powers as the Soviet Union, China, and the southern developing nations.

Environmental Constraints

Clearly, then, the international economies face major challenges of adjustment and change that require policies, planning, and institutional adaptations of the most radical and thorough-going kind.

But even if mankind followed the most intelligent course in political and economic matters, would the earth be able to support the projected population at the projected standard of living in a sustainable manner, that is, without inflicting incurable harm on the ecosphere? Here, unfortunately, even the experts can only talk about warning signs, but cannot speak with any degree of certainty. Yet this appears, at present, to be the most fundamental dilemma facing the planet.

Over the last century, the global temperature has risen by at least 0.5°C and the sea level by 12 cm. We do know that over the same period, agricultural, industrial, and energy-related technologies have released vast amounts of water vapour, carbon dioxide, methane, and other "greenhouse" gases, but whether these have caused the climatic changes or merely accompanied them is still a matter for debate. Clark quotes expert opinion which anticipates, however, that by 2040 the global temperature may well be 2°C above the 1985 figure, with consequences such as increased coastal flooding in India's Gangetic delta, a northern migration of crops and natural vegetation in Europe, and aggravated droughts in the Mediterranean basin. The deleterious effect of chlorofluorocarbons on the ozone layer of the stratosphere, and the corresponding increased exposure of the earth's surface to carcinogenic ultraviolet light, has recently been discussed in the daily newspapers. It is notable that while global ozone depletion between 1969-86 was of the order of 2 to 3 per cent, the full implementation of the Montreal Protocol on Protection of the Ozone Layer would still result in a further depletion of about 4.5 per cent between 1985 and 2040.

The visually most impressive of the current environmental changes is the forest damage of North America, Europe, and China. In central Europe, where forest management had been highly developed, the current decline is five times the volume annually harvested. The cause is not well understood, but most agree that it is some combination of atmospheric pollutants, including acid deposition, sulphur and nitrogen oxides, and heavy metals, i.e., products of industrial activity. Europe has a long history of industrial pollution and provides the best indication of what may be in store for North America and China.

The United Nations has forecasted a continuing trend towards urbanization. Fifty years ago less than 30 per cent of the world population lived in urban areas; 50 years hence, 60 per cent is expected to do so. In addition, the Brundtland Commission expects that some of this growth will be concentrated in the most polluted urban conglomerations of the world. Mexico City is expected to grow from the most recent estimate of 16 million inhabitants to over 26 million in 2000, Sao Paolo from 12.6 million to 24 million, Bombay from 8.2 million to 16 million. Many other cities of the Third World could be cited. The resulting pressure on the ecosystem will become tremendous. But ecological damage may become visible only well after the harmful action has occurred. Formulation of a corrective policy may take more time, and then it will take even longer before it becomes effective.

Such considerations yield the disturbing result that with current technology it may not be possible to provide for the world population as a whole a standard of living comparable to that of Europe in 1950 without inflicting serious damage on the environment. This would be true even if reasonable geopolitical and economic strategies were followed. Either ecologically sound technologies are developed or else something will have to give: population growth, the rise in living standards, or peaceful development (or a combination of them).

The Threat of Discontinuity

Thus analysis of the "heavy trends" can provide interesting information. However, history teaches us that these trends are frequently interrupted or deflected by surprise events or discontinuities. Discontinuities can be of many sorts, and a few examples must suffice. The appearance of founders of universal religions and of charismatic political or military geniuses like Alexander, Genghis Khan, or Napoleon can change the history of a continent or even of the world. Scientific or technical inventions furnish other examples – the steam engine, the internal combustion engine, and the computer being obvious ones. Each one revolutionized economic life. The discovery of a maritime route to the Far East abruptly changed the history of Europe, relegating the previously central role of the Mediterranean to that of a minor secondary area.

Discontinuities can occur also in the ecological sphere, as when the gradual accumulation of pollutants in a lake at one crucial point of time overwhelms its self-cleaning ability, and the lake becomes dead. While discontinuities are often heralded by what Pierre Dansereau calls "seed events," these are rarely recognizable when they occur, and often can be identified as such long after the event. We may be willing to accept the discovery of the transistor in 1947 as the seed event leading to the development of the integrated circuit, robotics, satellites, space travel, the personal computer, computer-aided design and manufacturing, and the information revolution. Another, perhaps more debatable, example would be the discovery of petroleum in Titusville, Pennsylvania, in 1859, which could be regarded as the seed event for the age of the internal combustion engine, aviation (and modern aerial warfare) of urban sprawl, and possibly of environmental deterioration via the greenhouse effect.

Reinforcement of Intersystemic Links

Discontinuities or surprises are, by their very definition, unpredictable. If the world decision makers cannot predict change and do not want to be overwhelmed by it, then they must learn how to manage it. This is an enormously complicated task because demographic, technological, ecological, political, and economic forces continuously interact. The phenomenal increase in the range of human activities since the turn of the century has led to a corresponding increase in the extent and complexity of interactions. Links between the demographic, ecological, and technological systems are no longer simply a local phenomenon, but a worldwide one. What once were isolated cases of pollution limited to a particular body of water or air are now phenomena spilling across borders. The level and pace of human activity has reached a point where the cumulative effects are destabilizing the fragile geophysical balances of the entire planet. The physical interdependence created by these tightening intersystemic links is matched by increased political and economic interdependence among nations.

For example, an economic problem such as Third World debt may induce countries to overexploit their natural resources (farmlands and forests), leading to desertification and the impairment of their long-run production capacity. And the destruction of rainforests may also have a catastrophic long-term environmental impact. It seems quite possible that population pressures and a growing refugee problem will lead to international disputes over immigration policies, that linkages between population and environmental policies could exacerbate both, and that environmental concerns may lead to fierce disputes about "pollution rights and obligations."

With stronger intersystemic links comes a higher probability that the effects of shocks or discontinuities arising in one corner of the planet will spread quickly to all parts of the globe. To manage change in such context, Clark thinks that the most fruitful approach would be to bring together teams consisting of highly competent professional policymakers, scientists, and technologists, let them develop "plausible futures" and discuss policy solutions to the problems these futures entail. Exercises in such "policy gaming" are analogous to the better known "military gaming" exercises. Past experience shows that plausible, relatively minor differences in basic assumptions can lead to widely different "plausible futures." This is one of the useful lessons of such gaming exercises. Another is that it forces a coherent logical framework on the participants. Also, the approach is an excellent vehicle for exploring how long it would take to consider a policy response to a crisis, to put it into action, and to experience the desired effect. Political games help to refine future research priorities and to make scientists and politicians understand each other's problems.

In summary, world population prospects considered along with forecasts for energy use, agricultural production, and dematerialization suggest some reasons for guarded optimism. While acknowledging the severe problems of sustaining living standards in the face of environmental degradation, Maynes and Kirton maintained that powerful forces such as television, the spread of literacy, and the increasing respect for human rights are tending to reduce the chances of global conflagration. At the same time, there are some indications that international political institutions will be able to adjust to the changing world structure.

Greater caution is called for when investigating economic trends and prospects. The economic success of certain developed and developing countries stands in sharp contrast to evidence of growing impoverishment of the poorest. Also, the fragility inherent in international trade and financial imbalances coupled with increasing interdependence among economies, place an ever-greater responsibility upon international institutions. Clearly, straightforward projections of rising living standards will be subject to effective governance and in particular to our capacity to manage the unfavourable surprises that can occur as a result of the relationship between economic activity and the future of the ecosystem.

II Canada's Place in the World Economy in the Year 2000

The world of the year 2000 will be driven by rapid technological change, fuelled by the information revolution. Productivity of those countries which can master the modern technologies will continue to converge. Several new countries will join the club of advanced economies. These economies will target mass markets for standardized products. Countries that now enjoy relatively high standards of living will have to face the challenge of increased competition. Some industries in the Canadian economy will be particularly hard hit by the arrival of new competitors.

In addition, the erosion of the United States' leading role in the political, economic, and military fields opens the possibility that powerful regional coalitions will coalesce around the three main centres of influence – Japan, the United States, and Europe. These new groupings may have a significant impact on international flows of goods and capital.

The convergence phenomenon has also expanded the borders of the industrialized world, and the recent opening up of communist countries to the West signals the emergence of sizeable new markets. These developments may offer Canadian firms some excellent commercial and financial opportunities.

In such a global context, what are the prospects for the Canadian economy – its structure, characteristics, and potential performance?

Resilience or Resignation?

The speakers at the conference expressed a wide variety of views and varying degrees of optimism. The optimists, particularly Côté, based their views essentially on past experience. Canada has, after all, overcome a large number of quite considerable challenges in the last 25 years. As for the information revolution, the computer has been with us now for over a generation, has successfully invaded the spheres of research, business, and the military, and is now beginning to find its place in private homes. The oil price shocks inflicted painful blows on the economy without bringing it to its knees. The country has also survived the rise of Quebec nationalism, the 1980 referendum, and the proliferation of federal-provincial battles. The 1981-82 recession was, by a considerable margin, the worst since World War II, yet the unemployment rate in Canada is now only marginally higher than in 1980, while the inflation rate has been cut to less than half. Economic growth in the 1980s has kept up with that of the United States. All this happened in a world of wildly fluctuating exchange rates. All in all, therefore, the Canadian economy has demonstrated remarkable flexibility and resiliency.

This view does not deny that Canadians will have problems. Most of the export markets where Canada is well-placed are resource-based: farm products, ore, forest products, energy, and so on. In 1988, these products accounted for almost half of total Canadian exports of merchandise and services. As far as farm products are concerned, Canada may still enjoy favourable market conditions if the Uruguay Round negotiations come to a successful conclusion. It is quite possible, however, that the trend towards world overproduction will continue, leading to drastic changes in the agricultural sector and a gradual decline in the importance of farming to Canada's economy.

As far as other commodities are concerned, the basic question is whether the direction of international price trends will favour Canada or not. Commodity prices have generally been declining since the mid-1960s, and there is no sign of this trend reversing. There is little likelihood of raw material shortages in the medium and long terms. In some industries, new technology is helping to increase productivity. Other industries, such as metals production, are being hit hard by the emergence of new and less-expensive substitutes such as plastics, ceramics, and optical fibres.

The most important long-term question for Canada is whether the country can win itself a comparative advantage in other industries characterized by higher-value-added products, particularly high-tech manufacturing and industries requiring highly specialized labour. For Côté, the production methods of the manufacturing sector around the world are undergoing profound change. Technology is increasingly levelling economies of scale. Flexible, smaller-scale production is spreading throughout the manufacturing sector. It is now possible for small- and medium-sized firms to carve out niches in world markets, provided they show flexibility and display leadership, quality control, and innovative design. These trends will work in favour of Canadian manufacturing. The small size of Canadian plants will no longer represent a major disadvantage.

Thus there is cause for reasonable optimism. Provided Canadians adopt an outward-looking stance in international trade, keep the Canadian dollar floating vis-à-vis the U.S. dollar, and maintain the dynamism of entrepreneurs and enterprises, Canada's growth rate will approximate that of the United States.

Is Côté's view not excessively optimistic? Assessing the structure and characteristics of the Canadian economy, Paquet finds a serious case of arteriosclerosis.

Among other things, he points to an aging population unwilling to take risks; an economy suffering from a rigid wage structure coupled with continuing high unemployment; declining industries that need state intervention to help the orderly phasing out of inefficient products and that need assistance for the development of better design; a financial system that is becoming increasingly unstable and whose dynamism is hampered by federal-provincial jurisdictional squabbles; and an agricultural industry where half of the output is entrusted to marketing boards that are not efficiency-minded.

In the manufacturing sector, Canada's current productivity performance indicates that its infrastructure leaves much to be desired. Our productivity levels at the industry level are far below those of the United States. Moreover, during the 1980s, Canada was passed in the productivity race by West Germany, France, and Italy, countries that continue to improve their records. Other countries, notably Japan, are also rapidly gaining ground on us.

From a political economy standpoint, as Ken Norrie pointed out, we may take satisfaction from having navigated the shoals of growing federal-provincial tensions in general and of the 1980 Quebec referendum and the repatriation of the Constitution in particular, but this does not mean that we shall not experience even more severe problems of regionalization in the future. Province-building often involves erecting barriers to interprovincial flows of goods, services, and factors of production that are perhaps even more pernicious than tariff and nontariff barriers to international trade. Nor can we take for granted that the postwar multilateral liberalization of trade will continue. The recent difficulties in GATT negotiations, in particular in the fields of agriculture and the nontariff barriers to service flows, indicate that future progress may come only with great difficulties, if at all. For all these reasons, Norrie thought Côté's optimism was overdone.

What policies would be most helpful to facilitate Canada's adjustment to, and success in, the new global environment? The conference participants chose to focus on macroeconomic policies, trade, redistribution policies, education, and training.

The Role of Macroeconomic Policy

As for macroeconomic policies, Helliwell focused on the importance of a prudent approach to both inflation and financial management. On inflation, he examined the record of 18 industrialized countries over the last quarter century and found that countries following expansionary policies that lead to higher-than-average inflation rates are likely to achieve less-than-average growth rates of income and productivity.

What about the argument that higher levels of public provision of goods services may help to increase adaptability to change and thereby stimulate productivity growth? The experience of the 18 countries investigated by Helliwell failed to reveal any systematic positive relationship between government spending as a share of GDP and productivity growth. On the contrary, there seems to be a weak negative relation between these two indicators. This leads Helliwell to conclude that adaptability in the labour force is not likely to be gained through expansionary policies and will require, instead, institutional changes and harder political choices.

On this latter point, Helliwell was challenged by Osberg and, to some extent, by Tsurumi. These speakers emphasized that the stabilization of the growth path of the economy is very important if governments wish to gain the whole-hearted cooperation of the labour force in the adoption of new technologies and the adaptation to increased foreign competition. Only if alternative jobs are available for those who experience layoffs will workers be willing to renounce obstruction as a defensive strategy.

In the field of monetary policy, Helliwell's objection to inflation was echoed by Tsurumi. The latter thought that, just as in the case of Japan, Canada's economic growth rate will depend on its ability to successfully build up exports of high-value-added manufacture, technologies, and services. This requires substantive investments in marketing in foreign markets, which are cheaper if the Canadian currency is strong. This argument was interesting in that it runs counter to the conventional wisdom that an appreciation of the dollar makes Canadian exports less competitive.

Trade Policy

On trade, the greatest degree of agreement was reached in the recommendation that Canada must remain open and outward-looking. Helliwell found that increasing the openness of an economy strongly contributes to its productivity growth. Indeed, he regards resistance to protectionist pressures as one of the main policy priorities of government. When discussing what Canada can learn from Japan's success, Tsurumi too supported this view, maintaining that the government always exposed Japanese industry to international competition.

While speakers generally agreed on the importance of adopting a trade strategy that is open to the world and of resisting protectionism, opinion was divided on exactly what form this openness should take. Helliwell expressed preference for strengthening multilateral trade while Norrie and Tsurumi, expressing no opposition to multilateralism, stressed the importance of trade with Pacific Rim countries.

Paquet, for one, felt that the decision to enter into a free-trade agreement with the United States was ill-advised. According to Paquet, free trade has the fault that it assumes perfect competition and relies on the existing comparative advantages of our economy for success. Paquet makes instead the controversial recommendation that Canadians should learn from the example of Japan and the East-Asian "little dragons" and adopt *managed trade* – an offensive trade and targeting policy. According to Paquet, imperfect competition and increasing returns to scale combined with the use of export subsidies, R&D support, tariff quotas, and other nontariff measures are said to make it possible to "create" one's winners. The development of managed trade requires interactive planning between technocrats, stakeholders in the policy game, and from the many groups at the periphery who have important local knowledge of the problems.

Impact of Redistribution

If there was a difference of views regarding trade strategies and macroeconomic policies, it was mild compared to the clash of opinions about the social and economic policies needed to cope with the distributional problems of the future. In this discussion, the question of government transfer payments took a central role.

Transfer payments to persons can be separated into two groups. Some transfers protect against temporary reductions in income or transitory mishaps. Unemployment insurance, health insurance, and the Canada and Quebec Pension Plans are examples. They play the role of "social insurance"; they aim at evening out income flows over the life cycle and preventing persons who would otherwise be adequately provided for from lapsing temporarily into poverty. Other transfers like the Guaranteed Income Supplement and Social Assistance redistribute income to the "lifetime poor," and are generally labelled as "social assistance." Canada's existing network of social programs is in fact a mixture of the two, particularly since the "social insurance" type transfers are not necessarily financed by user charges or by actuarially sound premiums.

According to Lars Osberg, the attitude towards transfer payments can be regarded as the touchstone for distinguishing two quite different visions of the Canada of the future.

The Implied Social Contract

One vision recognizes that to achieve success in a rapidly changing world will require Canada to make substantial structural changes. The changes – including increased openness, trade liberalization, and technological change – will be to

Canada's net advantage because they will, on the whole, increase productivity. However, in the absence of government action, the advantages would be unevenly distributed. So would be the burden of the unavoidable adjustments involved in changing production methods and economic structure. Helliwell demonstrated that increased openness of the economies went hand in hand with increased productivity, *but not with increased GDP per capita*. This suggests that increased openness was accomplished by a reduced participation rate and/or by a reduced employment rate. In either case, the structure of income distribution is likely to change as a consequence of increased openness of the economy.

Osberg also argued that technological progress will have a significant redistributive impact in the years to come. Those capable of acquiring new skills easily will likely prosper in the labour market. Yet 24 per cent of adult Canadians are illiterate and many literate Canadians have mastered only the most rudimentary mathematical and scientific concepts. A relatively large proportion of the Canadian population thus finds itself poorly equipped to handle the effects of technological change. The adjustment costs of technical change will therefore fall disproportionately on the poorly educated.

As for the influence of demographic forces on transfer payments, the aging of Canada's population increases the need for transfers because older workers find the career changes and interregional migration necessary for adapting to changing industrial structure more difficult than would a younger labour force. Also, the size, indexation, and funding of transfer payments to the elderly has a significant effect on the intergenerational distribution of income. Environmental decay damages agricultural and forest areas more than industrial ones, thereby creating new problems of income distribution. The prevention or cleaning up of pollution would constitute a cost to the present generation, but would improve the standard of living of future ones. Who should pay? Today's taxpayers and investors, or the next generation?

Why this strong emphasis on distributional problems? Because, it is argued, technological and structural changes can be accomplished best when all concerned agree that the changes are necessary and desirable. To achieve this, it is vital that the distribution of burdens and rewards *be perceived as fair*. The difficulties of transition must be eased by transfer payments, countercyclical policies must smooth the swings in economic activity so as to reduce unemployment, and the need for unemployment insurance benefits and – if necessary – part of the gain in productivity should be distributed to the citizenry by publicly provided goods and services.

Osberg called such a system the "implicit social contract," and cited the Scandinavian countries, Austria and Australia, as examples. In these countries, the labour unions cooperate in the introduction of new technologies and keep wage demands sufficiently low to remain internationally competitive in return for reasonably full employment, a say in the introduction and management of new technology and an extensive system of social insurance and assistance. The cornerstone of this conception of the welfare state is the political concept of the community. The community approach offers broadly based sharing of both risks and economic benefits in return for all that civilization can offer in terms of security and independence. Such a system is rooted in universality, a notion central to the concept of community.

The beneficial effects of such an approach are so evident that corporations like IBM and the Japanese Zaibatsu are trying to create private business equivalents to it. The importance of "corporate welfarism" was also emphasized by Tsurumi, among the lessons Canada could learn from the Japanese example. He chided North American businessmen for their "neutron bomb mentality" that attaches higher value to bricks and machines than to human beings. Helliwell seconded this by criticizing the Canadian system of transfer payments as being more a social safety net for corporations rather than for individuals.

The Limited Welfare State

The second vision presented by Osberg – but rejected by him – does not support the social contract concept because it is thought to give rise to an overload of demands on governments. Proponents of this view are less concerned about stabilization, mainly because they believe that a good part of unemployment is voluntary and the remainder structural. Unemployment cannot be permanently reduced by fiscal and monetary policies, only by structural ones. However, a higher level of unemployment increases the inequality of income distribution and also raises the demand for services provided by the welfare state. In consequence, the advocates of this second view demand the refocusing of the welfare programs to the individuals or families they regard as truly needy.

Proponents of "this limited welfare state" think that lost national output under universality is high because individuals adjust their work behaviour to the high tax rates required to finance universality. Helliwell added that people are only too likely to get entangled in our present social safety net and find it difficult to escape the "welfare trap." We should try to replace it by a set of policies – trampolines rather than nets – that would help to prepare and maintain people's "ability to spring back revitalized." The shift in emphasis is all the more important because, as a discussant from the floor claimed, there are more and more pressure groups clamouring not only for a safety net, but also for a security blanket and a pacifier too. They want to be protected against all downside risks. The state is expected to provide more and more of the goods which have been traditionally regarded as "private."

Courchene cited day-care as a typical example. This leads to the overload mentioned above, with the consequence that provision of collective goods such as defence, justice, research, and culture suffer, leading to the privatization of many traditional collective goods like police and research. Indeed, Norrie went as far as to say "that the next major policy debate in Canada will centre on reform of the entire range of social programs" because "we cannot go on providing the level and quality of coverage without a substantial increase in taxes or charges."

But what is the scope for change if (as in Osberg's opinion) the electorate interprets the government's 1988 election campaign as a firm promise that voting for the free-trade agreement will not impair our social security and transfer payments system, and any perceived violation of that promise would have dire political consequences. Courchene, on the other hand, thought that it would be regrettable if reform that would have been necessary and desirable in any case would be politically foreclosed because of the adoption of the free-trade agreement. If, after all, perceived equity is as important as the proponents of the social contract maintain, how can the universality of Old Age Security (OAS) be defended when it provides those over 65 with an annual transfer of roughly $6,000, regardless of income class? "There is ample scope for more selectivity here, where most of the benefits would flow to the lower-income elderly, an increasing proportion of whom are single women."

Ultimately, it would appear that the differences between proponents of the social contract concept and the limited welfare state approach are rooted in their respective views of competition and markets. The proponents of the limited welfare state think that competition, if not perfect, is about as close to it as one could hope, and certainly preferable to state interference. Stabilization policies are doomed to failure. Social insurance programs should be privatized or replaced by government programs that mimic the private sector. Social assistance programs should be replaced by some relatively simple programs like the negative income tax. This should be structured so as to minimize the disincentives to labour supply. Adherents of the limited welfare state usually prefer decentralization of political and economic power, because they think this promotes competition between provinces and permits social experimentation. Courchene pointed out that it was the province of Saskatchewan that first introduced Medicare.

Advocates of the implicit social contract emphasize that much unemployment is involuntary, and this proves that markets are imperfect. There is just too much uncertainty in a global economy driven by headlong technological change and inflicted with frequent discontinuities to make a *universal* privatized or quasi-privatized social insurance system feasible. If it is not universal, it will not provide that sense of community needed to cope with the social change forced by international competition and the desire to raise living standards. The political decentralization of the recent decades is regarded as dangerous, because it undermines the sense of community. The health insurance system, highly valued by the great majority of Canadians and regarded as superior internationally, outstanding by many foreign observers, was nationally adopted because of the pressure by the federal government, *not* through spontaneous imitation of Saskatchewan's example by the other provinces.

The Key: Education and Training

The importance of education and training in meeting the challenge of international competition attracted virtually unanimous consensus. With more and more countries entering the field of traditional products and production techniques, Canada will be able to maintain its current rank of second highest standard of living only by success in knowledge-intensive high-technology industries. In this context, Côté regretted that governments assign research support to universities on a political basis rather than according to quality. This prevents the emergence of true world-class excellence.

Aggressive participation in the globalized economy is a must, and change-resistant inward-looking attitudes are a sure path to poverty. How can Canada prepare its young people for a world in which technologies will become obsolete with dizzying speed and in which Canadians may have to look forward to several major career changes during their working lives? Evidently, the exact technical and professional requirements are unpredictable. The only thing an effective educational system can do is equip young people with sound basics in literacy, communication skills, numeracy, and an early and effective start in foreign languages, so as to enable the students to acquire whatever special knowledge or skills their eventual careers will require. Seen in this light, the educational system is unsatisfactory. The 24 per cent of adult Canadians that are reported to be functionally illiterate is not merely a reflection of the fact that older citizens received less education than the younger ones. Even among those aged 18 to 24, the functional illiteracy rate is 17 per cent.

Nor is there much reason for complacency about those who complete high school. The international mathematics studies indicate that by international standards, Canada's high-school graduates' performance is mediocre or worse. As for the foreign languages, the sketchy information available gives little cause for satisfaction, even though mastery of foreign languages is extremely useful in foreign trade. In this regard, Tsurumi made a plea for extensive education of

Canadians about the advent of the Pacific Age and about the "peoples, cultures, geographies, economics, and politics of other Pacific nations." The problem of education is intertwined with that of income distribution. Study after study has demonstrated that the offspring of families from higher socio-economic strata are heavily over-represented among those taking postsecondary education, and thereby are likely do find more and better paying jobs. In Courchene's view, the entire educational system needs to be revamped in order to, amongst other things, ensure that the new information technology becomes accessible to all youngsters, not only to the children of the well-to-do.

In short, Canada must pursue a strategy of openness to the world and adopt an aggressive stance in international markets. In order to maintain our position in these markets, the Canadian economy will have to be restructured in the high-tech industries, where the most important production input will be human capital. The ability to absorb new technologies, the willingness to apply them, the willingness to compete on the global market, and political stability are the conditions of success.

The ability to absorb new technologies depends in turn on the education of the labour force. In an age of rapidly changing technology, a sound education in basics and the ability to find out new information are crucial. But ability to absorb new technologies is not sufficient. Lars Osberg emphasized that willingness, even eagerness to apply it is needed, but one can expect such an attitude from individuals only if they do not feel threatened by change. Otherwise, political pressure will arise for protectionism, tariff and nontariff barriers, and for a general attempt to isolate the economy from global competition. As for the importance of political stability, the example of the South American states shows that frequent upheavals and lack of public confidence hinders capital formation and the adoption of new technologies.

III Employment/Human-Resource Development

We have just seen that economic reality, for most countries and most workers, resides firmly in the domain of fiercely contested global markets. The competition derives not just from the United States, Japan, and Western Europe but, increasingly, from such newly industrializing economies as those of the "Asian dragons" that are rapidly catching up to the West in terms of technological sophistication, productivity, and industrial power.

The keenness of such global forces is likely to be further honed by increasing trade liberalization and redoubled efforts in the race for technological ascendancy. Global shifts in the locus of economic activities, such as the gravitation of goods production to Third World countries, mirrored by the increasing weight of service activities in the advanced world, require far-reaching industrial restructuring and labour market adjustments in individual countries.

Against such a backdrop, many visions of Canada's future show a prosperous and technologically sophisticated economy clambering up the value-added ladder by concentrating heavily on knowledge-intensive products and processes and a highly trained and versatile work force. Many observers believe that Canada's ability to make such a vision reality – to survive and prosper – depends critically upon human-resource development. What, then, are the prospects for the Canadian labour force in the years ahead? Must we lose jobs to low-wage, Third World competitors? Will competitive pressure force us along the path to de-unionization taken by the British, the Japanese, and, most especially, the Americans? Will Canadian management and labour succeed in making the organizational transformations needed for industrial flexibility and competitiveness? How confident can we be that Canadian education and training will meet the demands of headlong technological advance in the drive for productivity and growth?

Trends and Challenges of the Global Labour Market

There are a number of salient features of global labour market development that have implications for the future of Canadian labour market institutions and wages. Specifically, Richard Freeman focuses on six major developments:

- the de-unionization of Canada's major economic partners – the United States and, to a lesser extent, Japan and the United Kingdom;

- the worldwide deregulation of labour markets to increase flexibility;

- the shift in world employment, particularly manufacturing, to less-developed countries, and an accompanying new division of labour among countries;

- the differing pattern of growth of employment, real wages, and productivity between European and non-European OECD countries, which suggests the existence of a real wage/productivity-employment trade-off across countries;

- rising wage differentials in the United States and the United Kingdom that threaten greater wage inequality in the future; and

- relatively high and stagnant or increasing rates of poverty in the United States and Canada, especially among children.

To this list Tom Kochan gives additional emphasis to new technologies, including greater differentiation within product markets and the shortening of product life cycles that place a premium on quality and innovation. All these pressures translate into demands on industrial relations systems for labour-cost moderation, improved productivity, flexibility in the use of human resources, a highly skilled and motivated work force, and sustained innovation in labour-management relations.

From the education perspective, Psacharopoulos adds the following global trends. First, in all countries educational financing is becoming an urgent problem that is likely to spur increasing public debate over the relative roles of the public and private sectors. Second, the need to adapt to rapid technological change is placing greater emphasis on general communications skills rather than narrow vocational courses, and on more industry-based training.

Pressures on Labour Unions

Given this global backdrop, what are some of the specific issues facing the Canadian labour market? A major question is to what extent Canadian unions can expect to maintain the amount and kind of influence and play the kind of role that they have had in the past. Countries with which Canada has strong ties – Britain, Japan, and particularly the United States – have experienced declining rates of unionization. In the United States, private sector union density has fallen for three decades and is now less than 15 per cent, the overall non-farm labour force figure being 17 per cent. Pressures on Canadian labour institutions will come about in several ways. First, unionized Canadian firms will increasingly have to compete against non-union firms in the United States, Japan, and the United Kingdom. Second, footloose capital will tend to avoid higher-cost union settings, with consequent loss of employment and income for Canadian workers. Third, and closely related, the "union-free" objectives of U.S. business is likely to spill over to Canadian management, and stiffer employer opposition to unionism. Moreover, as Craig Riddell tells us, Canadian polls show a decline in public support for unions, which now enjoy a lower level of confidence than in the United States. Next, management opposition is manifested in the rise in unfair labour practices in Canada, and recent legislative changes in Canadian provinces imply a tougher climate for labour. Finally, Freeman's argument about labour costs is substantiated by Riddell's finding that in Canada there is an average union/non-union wage differential for otherwise comparable workers of about 20 per cent. Should we therefore expect to see union density and influence in Canada decline? What are the prospects for innovative responses by Canadian management, labour, and government that will transform and energize labour market institutions rather than render them increasingly intractable?

Employment and Wages Flexibility

Next, certain global trends in employment and wages also pose challenges for the Canadian labour market. Freeman draws attention to the less-developed countries' (LDCs) growing share of the world's industrial labour force (69 per cent in 1985) and their penetration of mass-production manufacturing markets. The challenges for Canada are several. It is crucial, for example, to facilitate the process of adjustment that is needed to effect the switch of resources from goods to services and knowledge-based activities. And, in this process, it is essential to maximize the productivity of human resources and the benefits of their complementarity to Third World labour, while maintaining the living standards of the least-skilled Canadians. A tall order indeed since, as Kochan reminds us, the continuing process of industrial restructuring, and the quest for comparative advantage through product differentiation and the exploitation of quality niches commanding a price premium, requires fundamental change in organizational behaviour, including industrial relations and human-resource practices.

Freeman's interpretation of post-recession growth in the OECD countries is that, with similar output gains, the Europeans enjoyed higher wages but high and stagnant joblessness, while the non-European OECD countries took their improved performance in the form of employment growth. For governments, therefore, a major concern must be whether Canada (like the United States, but in sharp contrast to most European countries) can maintain sufficient labour market flexibility and wage moderation to facilitate adjustment through continuing strong job creation. And equity remains a thorny issue since, in addition to well-documented evidence of the uneven skill and income impacts of technological change and industrial transformation, Freeman points to the sharp and unexpected emergence of significant wage differentials in the United States and the United Kingdom in the 1980s. Unexpected because the sheer numbers of the higher-skilled, better-educated baby boomers should have had a supply effect that would narrow such differentials. In the event, the gaps have taken the form of exceptionally rapid increases for skilled labour in Britain and – more disturbingly – of significant drops in real wages of blue-collar manual workers in the United States. If the U.S. experience is a guide, then Canada's least-skilled workers in the declining goods-producing industries must be a prime target of equity-based labour market adjustment programs.

Changing Composition of the Labour Force

To this formidable set of challenges inherent in global labour market trends, Tom Kochan adds another that derives from growing diversity of the labour force. Combine the increasing participation and share of women in the labour force with the growing numbers of immigrants, and it is clear that the needs, aspirations, and attitudes of Canadian workers in the future will be very different from what we have been used to in the past. U.S. estimates indicate that between 1987 and 2000, almost 90 per cent of all new labour force entrants will be women, minorities, or immigrants. Immigration will undoubtedly be important in the Canadian context where 20 per cent of the labour force is foreign-born. Particularly worrisome is evidence that immigrants' earnings are significantly below those of native-born Canadians, partly due to language deficiencies and other constraints on the ability of immigrants to learn skills required to advance to better jobs. U.S. evidence suggests that women and minority youth receive relatively less on-the-job training than white male counterparts, and enjoy proportionately lower rates of return to the training they do receive. In Kochan's words, such results "pose significant challenges to policymakers and practitioners alike given the growing consensus regarding the importance of training and life-long learning to long-term income, and the projected demographic mix of future labour force entrants."

Increased Demands on the Educational System

In the view of George Psacharopoulos, the centrality of human-resource development in various countries' strategies to adapt to and exploit the process of global economic transformation will place enormous burdens upon the education system. The link between education and economic development is firmly established and widely understood. Thus underdeveloped countries seeking an escape from grinding poverty and burgeoning demographic pressure pursue the goal of universal literacy. The advanced nations look to their educational systems for competitive edge in the headlong race for technological mastery and economic prosperity.

In all countries, however, the demands on the educational system are fast outstripping the state's ability to provide. Whether in debt-ridden African countries with crushing population pressures or in an infinitely better-off Canada with a major budget deficit and some tough questions about the social welfare costs of an aging population, the financing problem is daunting. So too, as Kochan and David-McNeil remind us, at a time when Canadians are, on average, better-educated than ever before, we have an illiteracy problem of major proportions, a high-school drop-out rate that approaches 30 per cent in some jurisdictions, and evidence of weak performance of Canadian students compared to Asian and European students on mathematics and science achievement examinations.

Less well-documented, but of equal concern, are the doubts raised about the adequacy of investments in training for those already in the labour force, and especially blue-collar workers most exposed to the risk of permanent job loss due to changes in technology. Such concerns stem from evidence that displaced workers with little education and/or general training have poor prospects of re-employment and from widely held views that Canadian industry, so long the beneficiary of skilled immigrant labour, continues to under-invest in human capital formation.

Prospects and Responses

The Future of Canadian Unionism

As far as the future of Canadian unionism is concerned, Richard Freeman sees no inexorable trend towards de-unionization, pointing out that the examples of the United States, the United Kingdom, and Japan are countered by advanced economies like Belgium, Germany, and Scandinavia, where union density has been maintained or has increased. Nor is there any systematic relationship between union density and macroeconomic performance: Sweden, with the highest union density, shows similar recent figures for GDP growth, employment, and productivity as the country with lowest union density – the United States.

Nor need Canada necessarily follow the Australians' lead in pursuing a more centralized "corporatist" Scandinavian model of industrial relations, since once again it appears that neither the highly centralized nor the highly decentralized industrial relations systems have a monopoly on economic performance.

Parenthetically, Riddell notes, however, that the best performances appear to cluster at the extremes, so that the classic Canadian tendency to seek the happy medium may not be desirable in this case!

All this is not to say that union density and the form of industrial relations system are irrelevant. On the contrary, there seems to be general agreement that there *must* be transformation and adaptation of labour market institutions and practices. For Freeman, Canadian labour has a little breathing space that derives from two factors. First, the legislative framework is less hostile to the certification process than is the case in the United States, and less tolerant of the virulent anti-union activities that are common south of the border. Second, our nationally funded social benefits (health care in particular) help give some Canadian firms a competitive edge vis-à-vis American rivals. For Riddell, the hope for Canadian unions to resist the forces of de-unionization lies in their willingness to take a more innovative approach to workplace organization and the use of human resources as well as technology to improve competitiveness and maintain a high-wage economy. The unions' ability and willingness to play a major role in that process of change will determine, in large part, their future relevance and effectiveness.

What about the inherent ability of the Canadian labour market to adjust? Change is incessant, and it is known that millions of Canadian workers make successful work-life adjustments every year. But can the Canadian economy handle the rapidity and the enormity of global change exemplified by the advanced countries' shift out of goods production? To the Jeremiahs, Freeman says: look to Massachusetts for an example of how an economy can successfully adjust to the loss of substantial traditional manufacturing employment. In the 1960s and 1970s, textiles, garments, shoes, and other traditional manufacturing industries fled to the low-age, low-tax, and mainly non-union South and Southwest. By the 1980s, Massachusetts boasted the lowest unemployment rate among the 11 major U.S. industrial states, and wages that had increased from below to above the national average.*

This optimism rests, however, on the proposition that Canada has some latitude for choice, and that she can gain benefits from the changing world scene and minimize the transitional and other costs of adjustment but that this will "require flexible and far-sighted policies . . . by private as well as by public decision makers." But it is to Kochan that one must turn for clues as to what, in practice, the responses of managers, unionists, and governments are likely to be, and to Abella for their prospects of success.

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*We observe, parenthetically, that events have overtaken the "Massachusetts Miracle" since the time of writing. The miracle is mixed.

Innovation in the Workplace

First, it seems clear that pressures for labour-cost moderation will continue. Although stories of concession bargaining frequently cited American firms in the past, the fact is that marked moderation in Canadian wage settlements has been observed since 1982. Memories of the recession have not yet receded, and job security has apparently been a higher priority than wage gains. However, another strategy for reducing labour-cost pressures – contingent payment systems like bonuses and profit-sharing – has so far had only modest penetration in the labour market. The prospects for their wider diffusion in the future are questionable. Canadian unions are less well-disposed towards such schemes than their U.S. counterparts. For one thing, effective participation in such plans requires a greater sharing of information on financial performance and future business plans than is currently the case in Canadian firms. And in the face of perceived reluctance to share information and encourage greater participation in the decision-making bodies and processes that administer contingent payment schemes, workers and union leaders are unlikely to accede to them. Moreover, such plans throw the equity of an organization's whole reward system into sharp relief, as when annual profit shares for UAW members were accompanied by handsome bonuses for GM executives. Kochan concludes that while pressures for wage moderation will continue in Canada, there are clear signs that countervailing equity and real income pressures are building.

Second, Kochan places considerable emphasis on organizational change and human-resource development as essential ingredients of "strategic restructuring" (the quest for comparative advantage through product differentiation or market segmentation by producing goods and/or services that can command a price premium) and technological change. He cites the example of Ford responding to dire economic straits in the early 1980s by a combination of initiatives that involved, inter alia, a commitment to promote employee involvement, introduction of profit-sharing in exchange for new employment security provisions, communications forums, and expanded training and education programs. Reviewing Japanese, European, and North American literature, Kochan concludes that "the full potential of new technology can only be reached by adopting new organizational forms that effectively integrate technology and human-resource strategies and practices." A key design feature of successful Japanese manufacturing processes (which *can*, incidentally, be transferred to Canadian soil, as recent examples attest!) is the concept of "humanware," in which "technology" is broadly defined to encompass innovation in human-resource development.

Despite evidence of growing awareness of the need for technological innovation and innovations in human-resource practices to go hand in hand, and despite highly visible examples of the benefits that flow from this principle in this and other countries, Canadian firms have not rushed to embrace it. Evidence from case studies and survey research at the Economic Council of Canada show that though there are many examples of specific aspects of such innovative practices, and applications of a particular facet of the overall approach, there are relatively few cases of an all-embracing framework that weds, to mutual advantage, the technological and human sides of the enterprise. Till now, most Canadian managers have invested far less energy and emphasis on human capital development than on physical capital and financial resources. Where efforts have been made to introduce innovative practices, they have often been met with skepticism by workers and unions particularly since, in some cases, they have been an ill-disguised attempt to keep a company or plant union-free. Prospects for success will therefore depend critically on the determined efforts to build channels of communication that promote mutual trust. Perhaps nowhere, at the moment, is this more critical than in the introduction of new technologies. Kochan's review of U.S. evidence, corroborated by the Economic Council findings for Canada, demonstrates convincingly that a sine qua non for successful adoption of new technologies is the significant involvement of worker (user) representatives at the early stage of the technological choice process and throughout the implementation phase.

Antagonistic or Cooperative Attitudes?

Are there any signs of changing attitudes? An Ontario study documents employers' skepticism towards innovative work practices and employee involvement in decision making – about technological change.* Yet, although labour leaders espouse an adversarial union culture, they are not opposed to cooperation with employers on areas of mutual concern. Indeed, one must not forget the encouraging signs of cooperation in the sectoral adjustment efforts of the steel, forestry, and electrical industries, the work of the Canadian Labour Market and Productivity Centre, or the concerted efforts of labour, management, and government officials under the federally funded Industrial Adjustment Service – to name only a few. All of these efforts reflect a deep understanding of the labour market challenges of global change and adjustment and a willingness to seek mutually acceptable outcomes. And, despite their slow diffusion, there are already a number of highly successful Canadian cases of innovative approaches to human-resource practices and workplace relations that may, taken together, constitute a sizeable demonstration effect.

Where does this leave Canadian management, labour, and governments? Canadian employers have not pushed new workplace principles as aggressively as their

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*Report of the Ontario Task Force on Employment and New Technology (Toronto: Government of Ontario, 1985).

American colleagues, nor have they provoked the same hostility in industrial relations. Thus a more gradualist, evolutionary approach towards more collaborative behaviour might be possible. An alternative, in Kochan's view, would be for management to invest in a 20-year campaign to reduce the influence of unions to insignificant proportions. Since, given the size and political strengths of Canadian unions, that seems like a costly if not impossible strategy, Kochan sees increasing efforts by management to promote change and adaptation with union leaders, either through conventional channels of negotiation and contract administration or by the development of new institutions for consultation at the workplace, enterprise, industry, and national levels. Such progress will come hard, however, requiring nothing less than fundamental changes in the managerial power distributions and organizational boundaries. A highly charged political debate is likely to accompany this process, which will result in success only if organizational culture – and, as Kochan insightfully points out, *management reward systems** – are reinforcing. (*Emphasis added)

For their part, Canadian union leaders, given much higher membership rates, have considerably more room to manoeuvre than their American brothers and sisters. This suggests that far from being involved merely in fierce rear-guard actions to stem further loss of membership and influence, or grudging accession to new practices, Canadian unions have greater choice to adopt a less reactive, more pro-active role by developing a strategy that *leads* the debate on how to adapt to change in ways that are consistent with the interests of their members. Such an effort would need to be guided by a vision of not only the role labour wishes to play at the national and provincial levels of policymaking, but also the long-run role unions want to play at the workplace and in strategic managerial decision making.

As far as governments are concerned, the fundamental challenge for policymakers is how to institutionalize and diffuse the necessary changes. But the record of North American governments in facilitating such changes is not encouraging, as the fates of the U.S. National Commission on Productivity and Quality of Work, and Canada's (federal) Quality of Work Life unit and (provincial) Ontario Quality of Working Life Centre suggest. In Kochan's view, the only hope for significant government influence in this field is that national policymakers will come to recognize industrial relations innovations as an integral part of Canada's long-term economic strategy. Readers must judge for themselves whether the incorporation of labour market adjustment and human-resource development principles into the strategic policy framework developed by the Prime Minister's National Advisory Board on Science and Technology and the Council of Science and Technology Ministers constitutes such recognition or not.

Canadian commentator Rosalie Abella appears much less sanguine than the other speakers about the coming process of labour market adjustment in this country.

She sees a future infused with nervousness and fear as labour and management struggle for control over the levers of power and engage in a "titanic conflict – for what they see to be their very survival." And it is the essence of liberal democratic policy determination, she contends, that this tension will spawn a turbulent political process in which the warring sides repeatedly seek influence and ascendancy. The process will be intensified, in Abella's view, because it will be played out under the shadow of the free-trade agreement which (to mix a metaphor!) will surely bring controversial adjustment issues into much sharper focus.

The spectre of confrontation arises because Canadian firms and industries, faced with global market pressures, will identify three alternatives: seek to change any perceived impediments to success, seek to relocate if they cannot, or close down. And if their attempts to change are met with opposition, they will threaten one or other of the other two courses of action. Thus unions and governments are confronted with fearful dilemmas. For the unions, "failure to cooperate as handmaidens of economic success carries the risk of circumvention or redundancy." Cooperation, on the other hand, carries for government the risk of a radically redefined social contract, and for unions the risk of collusive obsolescence. The corollary of this vision is that, in the coming struggle, the protagonists' preoccupation with the minimization of short-term risks may take them well beyond the year 2000 before they have experienced and recovered enough to consider appropriate long-term alternatives for public policy.

The Quality of Education

What, then, of the education and training underpinnings of the enormous adjustment task the Canadian labour market is called upon to perform? According to Jeannine David-McNeil, the outlook, at present, is bleak: budget difficulties have forced university and school board officials to cut spending to levels insufficient to ensure an adequate quality of education. Deterioration of laboratory equipment, diminution of library collections, too few computers, low participation rates at learned society meetings, zero or negative growth in academic salary payments are all manifestations of this malaise. In the face of such problems and in the context of the growing demands placed upon the education system, David-McNeil asks: how can we maintain, let alone improve, our global economic position?

This commentator places special emphasis on the *quality* of the Canadian education system. She refers to OECD studies that point out that a little understood, but extremely important, role of education resides not just in the transmission of theoretical and practical knowledge but in forming the attitudes, ethics, "mentality," and "outlook" of young people. These indirect and intangible effects of education affect, in turn, such factors as entrepreneurial spirit, work habits, attitudes towards innovation, work satisfaction, diligence, flexibility, and sensitivity – in short, all the factors necessary for successful adaptation of the challenges of rapid global change. It is for this reason that we should take David-McNeil's warnings about quality erosion and the funding crisis in Canadian education to heart.

Technological change, more than ever before, puts a premium on basic communications skills. Therefore it is chilling to learn that in Canada today, close to one quarter of the over-18 population are unable to read, write, or handle figures at elementary school level. This places an added burden on the labour market adjustment mechanism, since the vocational training for new entrants, as well as for workers moving to new jobs and skills, may require prior, remedial education. Moreover, the content and quality of Canadian educational curricula are, in any case, too often found wanting: too much emphasis on preparation for declining professions, for example, or even for obsolete qualifications.

Fortunately, David-McNeil has some suggestions to offer to policymakers, particularly on the acute problem of financing. Following Psacharopoulos' suggestions about the trend in public/private financing responsibilities, she recommends, at postsecondary and especially university levels, the forging of much closer links with private enterprise. Since many private organizations already contribute assistance to the education system in cash or in kind, she advocates a closer, more coordinated and continuous framework of linkages. Next, she feels that individuals could contribute more on the revenue side, citing the province of Quebec, where real tuition costs have not risen in over 30 years. Such an increase would also, in her view, help eliminate the student dilettantes and reduce the inherent regressivity of a system in which the less well-off subsidize the education of the rich. And in a provocative conclusion, Professor David-McNeil argues for a stronger federal role in education, on the grounds that education policy is an instrument of economic policy, not just a social cost.

The trends and prospects for the labour market we have summarized here promise fascinating changes for the future. Will they be efficient and orderly or, as Abella portends, characterized by "polarization, politization and paroxysms of trepidation. . ."? The answer to this question will be largely determined by the quality and relevancy of the public policies that will define the environmental framework for these changes.

IV Environmental and Institutional Framework for Economic Policy

All sectors of the Canadian economy, in fact, will feel the effects of fundamental change, and the process of change will have to be sustained, in fact shaped, by appropriate economic and social policies. These changes will be necessary to maintain the competitiveness of Canadian goods and services on international and domestic markets so as to protect the living standards of the Canadian population as a whole. Our decision-making institutions will have to develop economic policies designed to support the restructuring of Canadian industry and to enhance its level of technology and other important aspects of its competitive capacity. As pointed out by most contributors, however, the question of social equity must not be overlooked by government policymakers; they must analyse the redistributive impact of these changes and devise appropriate labour market adjustment policies in response.

Beyond these domestic considerations, the growing pressures exerted by population growth, the state of the environment, and the new context of planet-wide economic interdependence present another challenge to governments. The search for solutions and the implementation of appropriate policies should be undertaken in a spirit of closer cooperation, coordination, and, in some cases, harmonization at the international level.

Is Canada's institutional framework compatible with the development and implementation of the type of economic policies that will be needed? Is rapid and efficient decision making possible in the Canadian context? Are Canada's institutions and decision-making authorities up to the task? These are the types of questions that were raised during the last block of the conference. Speakers were invited to single out the most important aspects of the decision making and economic policy development process. Three major points emerged from these discussions.

First, one thing that is clearly lacking is a social contract or consensus between social partners, as well as between those who govern and those who are governed. This prevents the authorities from taking concrete action and making the necessary changes without constantly encountering systematic opposition (even hostility) from the various interest groups and other segments of the population directly affected by these changes.

A second element more specifically related to the Canadian context is the nature of the federal regime and the distribution of its power. In a context of adjustment, where national strategies must be chosen and implemented quickly, the fact that authority is shared by 11 different governments has a significant impact on federal-provincial relations.

Last, the whole subject of decision making cannot be properly addressed without considering the roots of the process, i.e., expertise, the role of advisers, and the relevance of the knowledge that is conveyed to decision makers. Since we are most concerned with economic policy, it makes sense to examine the role of economic advisers in the decision-making and policy-development process, a topic that certainly has special interest for the Economic Council.

Consensus and Economic Policy

For Ian Stewart, the establishment of social, economic, and political consensus is a prerequisite to economic performance and has a critical role to play in guiding Canada's strategic response to global forces and international trends. Richard Simeon argues that social consensus is crucial because social and interest groups have the ability, in the modern world, to block change. The participation and approval of those groups actually affected by change have become absolutely essential to the process. The debate over the free-trade agreement, the abortive attempt to de-index old-age pensions, and the debate over the GST are all striking examples of this truth.

At the present time, however, there appears to be a process of polarization and fragmentation at work within Canadian society that is hindering efforts to reform economic, social, and industrial policies and to map out national strategies. If this lack of consensus is allowed to persist, the quality of our economic policies and economic performance could well be jeopardized.

Erosion of Keynesian Consensus

The current situation stands in sharp contrast to the postwar era of consensus in economic policy development that lasted until the early 1970s. The foundation of this consensus was a philosophy or social contract associated with "Keynesianism." Keynesianism in that sense, which went far beyond Keynes' contribution to macroeconomic theory, gave capitalist democracy its ideological and political foundations by allowing the state to reconcile private ownership of the means of production with democratic management of an economy centred on full employment and equitable distribution of income. In the industrialized nations, this strong

Keynesian consensus, coupled with a period of buoyant economic growth, enabled the welfare state to flourish without triggering grave concerns about international competitiveness (as is the case today).

During the 1970s and 1980s, however, both in Canada and abroad, the Keynesian consensus eroded before a new philosophy espousing market efficiency and denouncing government interventionism. What sparked this sudden change? Several factors could be cited: the oil price shocks and their destabilizing effects on western economies; governments' inability to master inflation despite high unemployment; the increasing debt taken on by governments; and so on. But ideological factors also played a role, particularly a crisis in economic thought that ended the consensus of advice given to decision makers.

Alan Blinder's views on this question are unequivocal. He holds that the symbiotic relationship that once existed between theoreticians and policymakers has now completely dissipated. Policymakers find contemporary research far removed from the world they know and hence of little use. Academics, on the other hand, feel that policymakers are motivated by political concerns and more interested in looking good than doing good. Blinder believes that the main cause of this falling out between advisers and decision makers lies in the disputes that split academia into several different camps, so that Keynesianism was replaced at the cutting edge of economic research by "new classical" economic theory. He attributes this development to the sociological values of university-based economic research (where technical virtuosity and novelty are regarded more highly than more useful, more concrete approaches), to economists' well-known admiration and predilection for abstract theory, and to a general shift towards right-leaning ideas all over the world. Because Keynesian has always been more down-to-earth and more policy-oriented than the new classicism, its fall from grace has caused the connection between theorists and policymakers to suffer.

During the floor discussion, it was argued that, contrary to Blinder's views, there are academic economists belonging to a third school of thought (the supply-siders) whose advice is still listened to and respected by the present political authorities.

In any event, it seems clear that the advice delivered to decision makers is not as homogenous as it was when the Keynesian paradigm clearly dominated economic thought. As well, the rise of neo-conservative ideology in the industrialized countries coincided with the emergence of new classical theories in academic circles, a development that served to lend some legitimacy to the political prescriptions based on this new ideology. These two currents helped to install what Stewart terms "the new orthodoxy." Based on economic and political liberalism, the new orthodoxy advocates individualism, privatization, deregulation, and market efficiency, argues that the welfare state is an impediment to efficiency and motivation, and calls for a decreased role for government in general.

But does this new orthodoxy offer a basis for a new social consensus? Stewart claims that it does not. One of the cornerstones of Keynesianism was the adoption of policies to ensure the equitable distribution of the fruits of economic progress. The new orthodoxy makes little attempt to rectify this major shortcoming of market economies, i.e., their inability to solve distribution problems without outside intervention.

The Strategic Role of Collective Goods

How then can social consensus, which is so important to economic performance, be re-established? Considering the current state of public finances, there can be no return to the Keynesian policies of yesteryear. There is virtually no leeway left for new services or programs or for an expansionist approach to fiscal policy.

According to Stewart, the search for a new social consensus can only be based on "collective decisions" about what should and what should not be considered as public or "collective" goods and about the way these goods will be provided and financed. Such collective decisions will form the consensual base for a properly functioning market economy and strong economic performance.

In the short run, implementing such an approach would involve adopting effective policies designed to solve income distribution and redistribution problems. Only radical reform of the tax and transfer system – reform that reveals clearly how the programs are financed and administered and that seeks broad community consensus on the equitability of the proposed results – has any chance of success. In addition, like David-McNeil and Courchene, Stewart proposes a wide-ranging examination of the quality of our educational system. He also recommends that more public money be spent on housing and on infrastructure development, particularly in the areas of communications and incentives to innovation. He suggests that special attention be accorded to the question of immigration, so that this issue does not turn into a troublesome source of internal discord and economic disruption.

Finally, Stewart seems to consider the environmental challenge as an ideal opportunity to develop a collective-goods mentality. While he notes the enormous challenge that environmental constraints may impose on efforts to implement consensus-based economic policies in the approach to the year 2000, he nevertheless stresses that humankind has no choice but to develop new principles and new standards of behaviour that will encourage the reconciliation of private activities with the public interest.

This outline of a "new collective philosophy" finds much in common with the concept of the welfare state and the social contract expounded by Lars Osberg. The importance Osberg attaches to the concept of the community, a common collective culture based on fundamental practices of social organization, echoes Stewart's call for collective decisions on the nature and other characteristics of public goods. The two authors also agree on the critical importance of economic equity as an inherent value of most public goods such as education, the environment, and health. They are also equally convinced of the urgent need to achieve true community-based consensus on the reforms to be made to the individual tax and transfer system and on the equitability of the desired results.

Lack of Coordination Mechanisms

While it is perhaps possible to identify the basic elements for a new social consensus, it remains to be seen whether Canada's current institutional framework can accommodate the development of this type of consensus. Both Johnson and Simeon question whether our institutions and decision-making structures have the capacity and the efficiency needed to build consensus. They note the lack of mechanisms to allow the public, private, and non-government sectors to reach agreement on the direction of economic and social adjustment.

Unlike Europe, Canada has never developed tripartite or neo-corporate mechanisms to ensure cooperation among the social partners. The current government does, in some respects, espouse a consultative model in its approach to business and the provinces, but, says Simeon, it is a process aimed at an elite. The lesson of the free-trade and Meech Lake debates is that the consultative process must be broadened to include a wider range of groups and to involve them at an earlier stage.

Leaving aside the question of the mechanisms themselves, Johnson also notes that the record of cooperation between the public and private sectors in Canada is far from encouraging. There is a tendency in Canada to assign the private and public sectors quite distinct and separate roles. The private sector is given responsibility for economic growth and job creation, while the public sector is assigned the job of "humanizing" the economy. This traditional division of roles and responsibilities has created an enormous gulf between the two sectors.

Canadian Political Institutions

Vices and Virtues of Federalism

Johnson, however, echoes other commentators on the national scene in suggesting that the major obstacle to the emergence of consensus and the development of national strategies is the inherent nature of Canadian federalism, in that it is focused on regional interests and the division of powers.

Because of tensions between Canada's various cultures and regions and because of its sparse population, political dialogue in this country tends to be primarily inward-looking. Canada's politicians have been preoccupied with reconciling the differences between Quebec and the rest of the country and with defining the identity of the Canadian nation. This national obsession with soul-searching has limited our vision of the outside world and our ability to respond to the changes taking place around us.

Johnson observes that the evolution of Canada's public institutions has generally tended to reinforce the regional character of policy debates. He notes that Conferences of Federal-Provincial First Ministers seem to be replacing Parliament as the forum where provincial interests are represented and reconciled in one way or another with national interests. At these conferences, the interests and priorities of regions and provinces have usually prevailed over national interests and priorities, essentially because the primary concern of the provincial first ministers is their respective provinces and electorates.

Meanwhile, the powers available to the Canadian government to encourage adaptation to global pressures are limited by the Constitution. In several strategic areas, it is the provincial governments that decide what action ought to be taken – education, labour relations, and the regulation of activities like investment dealing and insurance are all good examples. In other areas, such as environmental legislation and immigration, the power to act is split between the two levels of government. For Johnson, the current system of shared authority represents a serious obstacle to adjustment. And the situation will only become worse if the constitutional mechanisms that allow overriding national priorities to take precedence over provincial concerns are weakened by the Meech Lake Accord. He points, in particular, to the provisions of the agreement on the federal government's spending powers and on the formula for amending the Constitution.

Johnson is not alone in pointing out the disadvantages of a system where power is divided between 11 governments. Recently, a working group composed of six business and labour leaders named by the Board of Directors of the Canadian Labour Market and Productivity Centre examined the question of adjustment. In its final report, the group concluded that one of the major obstacles to the development of efficient adjustment policy is the fragmented authority and competing objectives of the provinces.

It is tempting to conclude, then, that what is needed to meet the challenges posed by global competition is greater centralization of power. Simeon takes issue with this point of view, however, suggesting that Canadian federalism possesses some hidden virtues. Provinces are much more homogeneous and manageable entities. They are much more apt to develop coherent, integrated adjustment policies than a federal government trying to balance a variety of regional interests. (It is no secret that, in the interests of good federal-provincial relations, issues such as education and reform of the social security system have become taboo.)

Like Tom Courchene, Simeon sees an important virtue in decentralized federalism – the possibility for experimentation, for trying out a wide range of economic and social policies simultaneously. The provinces are also in a better position than the federal government to promote consultative cooperation among the social partners. It may be at the provincial level that European-style tripartism will be best able to develop. Moreover, to the extent that the provinces are able to develop effective adjustment policies suited to local needs, the burden of decision making and consensus building that falls upon the federal government becomes much more manageable.

Political Leadership

Another key factor in Canada's capacity for adjustment and consensus is the quality of leadership provided by politicians and decision makers and their skill in exercising this leadership. More than ever, governments and decision makers find themselves in an extremely difficult situation, beset by two strong, yet diametrically opposed currents of change. One consists of the external pressures stemming from globalization, which demand greater attention to such questions as competitiveness and economic efficiency. On the other hand are domestic economic and social pressures that reflect the increasing need for security and identity in an unstable world and that invoke such principles as social justice and equity.

If there is a degree of bias on the part of our political leaders against meeting global challenges in favour of dealing with domestic problems, it is probably because the general public remains woefully ignorant of the forces of internationalization. In a democracy, argues Ian Macdonald, the main problem is to convince the electorate that management problems at the global level have an effect on their personal lives and the lives of their communities. Only once this is accomplished can the political authorities make real progress on these issues. What is needed, then, is both a reason for politicians to act and some guarantee that the public will understand what must be done.

Promising Directions

What, then, does the future hold for Canada's political institutions? Judging from the present context, according to Simeon, global trends will work towards a diminished role for the federal government in the long run. Its powers will tend to ebb away in two directions – upward towards supranational institutions, which will become increasingly important as the distinctions between national economies and international policy break down, and downward towards smaller government units at the provincial and municipal levels, which are more flexibly attuned to the adjustment needs of smaller communities.

Indeed, certain signs of this trend are already evident. With the proliferation of bilateral and multilateral agreements on international trade, dispute settlement and decision-making powers are increasingly devolving upon supranational bodies. The same is true of exchange rate policy and macroeconomic policy in general. More and more decisions on the direction and coordination of these policies are made at Group of Seven (G-7) summits. Mergers and acquisitions among international corporations at the global level are undermining national competition legislation. There are a number of environmental problems that cannot be solved at the national level and so must be addressed by international authorities and forums. At the same time, there is a growing concern in several areas of the world with reclaiming local destiny by gaining control of the political and economic levers needed to reach local objectives.

For his part, Johnson opts for a new direction that calls for an expanded and more important role for the central government. He recommends that the constitutional powers of the federal government be strengthened, particularly its power to make treaties and to regulate national and international trade. He also suggests that some current constitutional proposals deserve a sober second look, particularly the provisions of the Meech Lake Accord regarding the government's spending powers and the constitutional amendment process.

In order to place issues of international importance on the political agenda, therefore, Johnson echoes one of the main ideas offered by Macdonald: the primary goal must be to educate the general public about the issues. Only then will politicians feel compelled to act. To keep national leaders and the public informed about the challenges associated with globalization, the two speakers recommend, notably, that federal-provincial conferences could play a more effective role if some of their sessions were specifically devoted to global issues.

Finally, Johnson advocates a concerted effort to respond to the grievances of the various regions of Canada in order to ease federal-provincial tensions and to make room for international issues on the public agenda. He contends that the provinces now possess adequate constitutional powers to safeguard their language, culture, and heritage. He also judges that their complaints on the economic front are unwarranted when measured against the progress that has been accomplished. The next question is: What exactly do the provinces want? In the case of Quebec, Johnson identifies the primary aspiration as the need to be recognized as a distinct society and cultural entity. The question of the concrete form that such recognition should take is at the centre of the debate over the Meech Lake Accord. He suggests that the Quebec government's constitutional powers can best be clarified through an interpretation of the Accord's distinct society clause. He believes that the basic aspirations of the West and of the Atlantic provinces are a desire for adequate representation in Parliament. For this reason, he concludes, the calls for Senate reform must be satisfied.

The Role of Economic Science

Does economics have anything to offer governments in the search for solutions to the great problems and challenges that lie ahead?

As we have already seen, Blinder feels that the symbiosis that once characterized the relationship between theoreticians and policymakers has disappeared. There is a strong feeling that economic science has little to offer economic policy development. Can the happy marriage that once existed between economic theory and practice be re-established? The author offers a guardedly optimistic prognosis for the future. Certain conditions will have to be satisfied. In particular, consensus must be restored within the community of economic researchers. Blinder believes that Keynesianism is currently staging a comeback in universities, now that the new classical wave is receding. He points to a number of nascent developments in economic theory that will shore up the underpinnings of Keynesian doctrine. There is reason to believe that once this task has been accomplished, Keynesians will return to the rich empirical tradition of earlier decades. If universities do indeed rediscover empirical research, Blinder predicts that the healthy working relationship between economic scholars and economic policymakers can be restored, provided that politicians are responsible and forward-looking enough to make better use of economic science than they have in the recent past.

While he agrees with much of Blinder's analysis, Dobell does not share his optimism on the future role of economics in public policy development and decision making. He casts doubt on the ability of economics to solve the dilemmas posed by the major issues currently on the agenda – the evolution of the ecosphere, international economic cooperation, the problems associated with human-resource development and industrial relations, the value of the social contract, and the need for new decision-making processes and institutions. Both the Brundtland Commission report and the report of the Council of Resource and Environment Ministers in Canada expressed strong doubts as to the ability of economic analysis in its present form to solve the problems of sustainable development.

Dobell stresses that, because markets are myopic, so too are economic theories that rely on market-based solutions. He points out that the analytical tools used for evaluating projects do not take into account their environmental impact and accord little importance to the welfare of future generations. In short, the analytical framework of economic science is not well-suited to a long-term perspective.

To the question "Is economics up to the task?", then, Dobell replies with a firm "no." And he goes further, suggesting that the human sciences in general are not up to the task. What will be needed to deal with the major problems of the third millennium is a truly interdisciplinary effort that will include the natural sciences. Economists will also have to become more modest, and better ways will have to be found to measure and account for human resources, ecological resources, knowledge, and access to information.

In short, there is no doubt that Canada's ability to adapt to change will be sorely tested in the years to come by several major issues. The decision-making process will inevitably grow more complex as global forces – foreign competition, environmental constraints, and demographic pressures – continue to intensify. In the absence of renewed social consensus, the country's adjustment capacity will be severely hampered and our economic performance may deteriorate. Yet our political system itself works against the development of such consensus. Even worse, efforts to reduce the national debt over the next decade may be expected to produce even greater friction between the federal and provincial governments. Still, while disagreement persists on the extent to which our system should aim at centralization or decentralization, there seems to be general agreement that constitutional issues and the various regional grievances must be resolved before we can focus our attention on global problems. In short, the outlook is for increasing pressure on our decision-making institutions and increasing complexity in the decision-making process. Only a multidisciplinary approach that takes into account the intersystemic linkages will be equal to the challenges posed by the next quarter century.

Conclusion

A number of broad conclusions can be drawn from the foregoing sections. First, and most obviously, any attempt to anticipate future public policy issues, and the research agenda required to inform the associated debate, must take account of a complex array of interrelated forces. Indeed, a major theme of the *Perspective 2000* exercise, and surely one of its major conclusions, must be the need by governments at various levels to adopt a framework of analysis, monitoring and policymaking that is explicitly intersystemic and intertemporal.

Such linkages among systems seem particularly pertinent to Canada whose open economy places a premium on the maintenance of competitive edge in the global economy but where, also, there is a powerful and growing awareness of the need for development that is environmentally sustainable. "Balance" may best describe the need to reconcile competing objectives in the "linked-systems" framework. Decision makers must be aware of the relationships among global physical, economic, and political developments. Even when one concentrates upon the domestic economy, it is clear that the notions of linkages and balance are paramount. Blocks II and III, for instance, suggest not only the need for a fine mix of policies – monetary, fiscal, international, and micro, for example – but point clearly to the need for a strategic approach to productivity enhancement that weds technological innovation with human-resource development. Furthermore, our vision of material progress and prosperity must explicitly address broader questions of social welfare with their attendant equity (and, therefore, ideological) considerations.

Equally important, institutional adaptation will be an integral feature of the unfolding future for all levels of government and also for employers and labour. Language and constitutional issues, and the future of fiscal federalism, will no doubt continue to challenge existing national institutions. But new and pressing issues will also call for governments' response. The environment is an obvious case in point, since institution-building will be transnational, but, at the same time, require the concertation of various levels of government within and among nations. Given the magnitude and complexity of global demographic developments foreseen in the coming decades, one might surmise that international migration will be another public policy issue requiring similar institutional responses. Industry and labour, for their part, will need to forge new organizational relationships that facilitate the transfer and application of new technologies and promote the development of human resources that will be essential to success in the information age.

One final conclusion concerns the critical role of discontinuities. At the time of the Perspective 2000 Conference, some observers were speculating as to the possible influence on east-bloc political economies of the personality of Mikhail Gorbachev. No one, however, could begin to guess just how rapid and momentous would be the events of the last year in Eastern Europe. Here is one of the most exciting developments of the century with classic features of a highly complex and perilously fragile interrelationship between political and economic factors.

War is perhaps the most obviously devastating of global discontinuities, but, clearly, natural disasters such as the Armenian earthquake and technological disasters such as Chernobyl, Bhopal, and the Exxon Valdez show that innovative modelling or "gaming" of potential future discontinuities in the evolution of global systems must be a major priority of policymakers. Moreover, the suggestion that such discontinuities are likely to become a more prominent feature of systems evolution lends even greater urgency to this conclusion.

A two-day conference cannot hope to survey all the major public policy issues that could arise in the future. There will inevitably be significant omissions in any exercise of this kind, in terms of both the subjects discussed and the treatment and development of some of the ideas put forward. Changing moral and spiritual values, the rise of terrorism, the changing structure of the family, health-care issues such as financing, the advent of deadly diseases such as AIDS – all these and many other phenomena with potentially enormous repercussions for the future had to be left unaddressed. One of the main goals of the conference was to help foster greater awareness among national leaders and decision makers of global pressures and their impact on the everyday lives of Canadians, so that the strategies and policies that will be needed to cope with these pressures have a better chance of speedy adoption. It is to be hoped that the Perspective 2000 Conference and its associated outputs (regional roundtables and published proceedings), along with other initiatives of this kind, will prove to have made an important contribution to this process.

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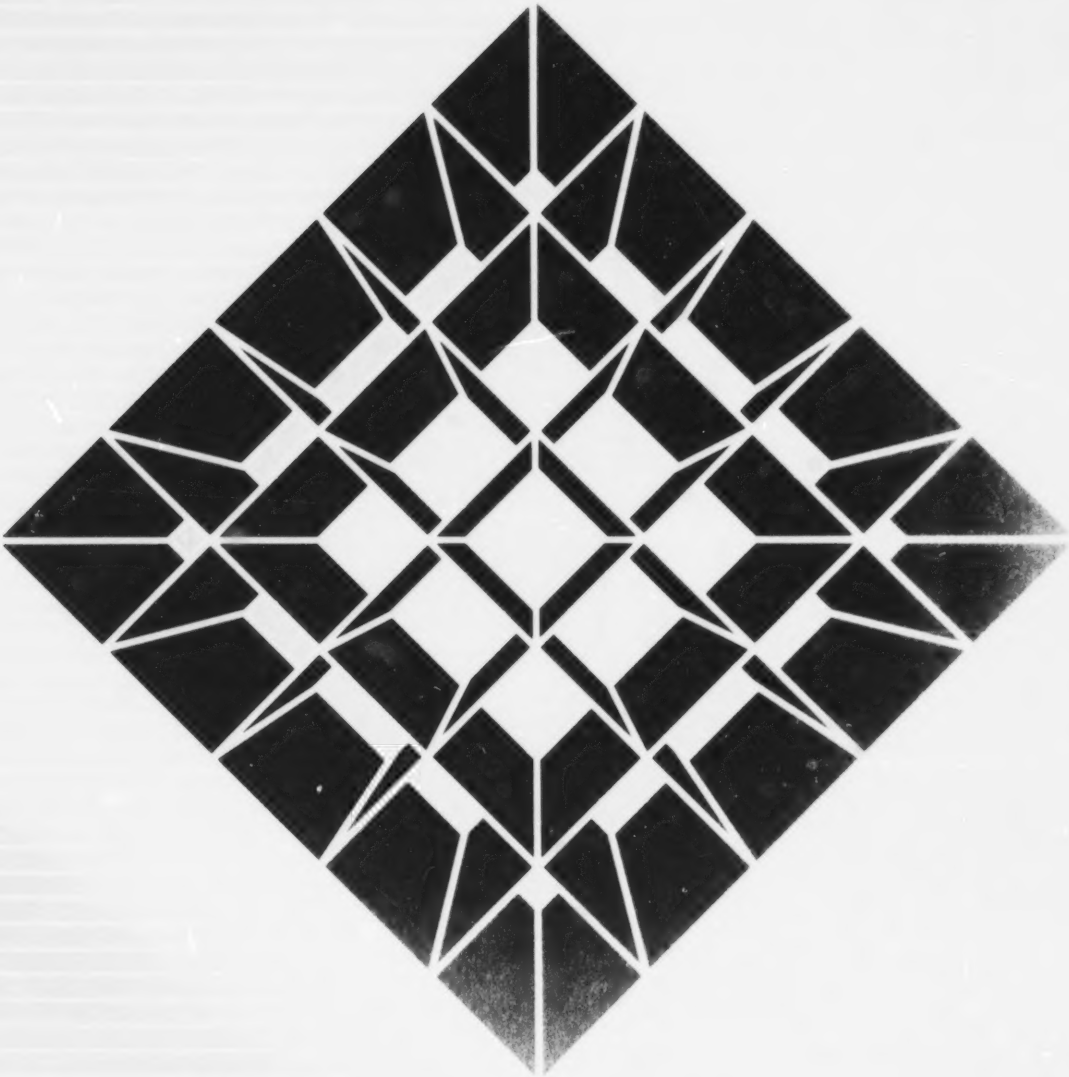

Proceedings of a Conference Sponsored by the
Economic Council of Canada
December 1988

Edited by K. Newton, T. Schweitzer, and J.-P. Voyer

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Perspective 2000

90-05941/

Canadian Cataloguing in Publication Data

Main entry under title:

Perspective 2000: proceedings of a conference
sponsored by the Economic Council of Canada,
December 1988

Issued also in French under title: Perspective 2000,
actes d'une conférence parrainée par le Conseil
économique du Canada, décembre 1988.
Includes bibliographical references.
ISBN 0-660-13569-8
DSS cat. no. EC22-167/1990E

1. Economic forecasting – Canada – Congresses.
2. Canada – Economic policy – 1971 – Congresses.
3. Canada – Economic conditions – 1971 –
Congresses. I. Newton, Keith. II. Schweitzer,
Thomas T. III. Voyer, J.-P. (Jean-Pierre), 1955-
IV. Economic Council of Canada.

HC113.P47 1990 330.971'0647 C90-098595-X

Perspective 2000

Proceedings of a Conference
Sponsored by the Economic Council of Canada
December 1988

Edited by
K. Newton, T. Schweitzer, and J.-P. Voyer

A collection of papers presented at a conference sponsored by the Economic Council of Canada. Although this volume is published under the auspices of the Council, the views expressed herein are those of the authors and, as such, have not been endorsed by the Members of the Economic Council of Canada.

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Available in Canada through

Associated Bookstores
and other booksellers

or by mail from

Canadian Government Publishing Centre
Supply and Services Canada
Ottawa, Canada K1A 0S9

Catalogue No. EC22-167/1990E
ISBN 0-660-13569-8

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Acknowledgments

We owe a major debt to Kathryn McMullen for intellectual inputs and a herculean administrative undertaking. Harvey Lazar made scores of useful comments on the entire project. The conference logistics were ably handled by Margaret Negodaeff and a team consisting of Jac-André Boulet, Bob Douglas, Pauline Blouin, Suzanne LaRochelle, Fran Peake and Dora Morris, who also handled the secretarial work for the project. The papers and their subsequent modifications were coordinated by Joanne Godin. We are grateful to the staff of the Council's Publications division for translation, text processing, and the complete preparation of the document for printing.

Foreword

The mandate of the Economic Council of Canada is to give Canadian policymakers pertinent advice about how to improve the medium- and long-term performance of the Canadian economy. The bulk of our research program is therefore focused on understanding the changing structure of the economy as the foundation for advice about how to adapt policies to shifts in markets, social preferences, and relationships among economic agents.

To do this well, we must occasionally shift our focus to a wider landscape that embraces a broader set of issues than those usually addressed by economists, and to a longer-range time frame. The year 1988 seemed the right time to do this for two reasons. First, we wanted to celebrate the twenty-fifth anniversary of the Economic Council by offering Canadians the intellectual stimulus of some provocative papers about Canada in the year 2000 and beyond. Second, the accelerating pace of change in the world economy and the growing interaction between different disciplines made it essential for the Council to use a wider canvas in selecting future research topics.

This wider canvas was intended to be explicitly global in nature, assessing Canada's prospects and potential in the context of international developments. It was also intended to focus not just on economic questions but on the linkages among various systems – social, demographic, scientific, geopolitical, and ecological, as well as economic.

Thus it was decided to commission papers by experts from a variety of fields and from several countries. The papers were presented at a conference in Ottawa on 30 November and 1 December 1988, attended by about 80 invited guests from different regions and sectors of the Canadian economy. The papers and ensuing discussion at the conference, and in subsequent workshops, will help to shape the Council's view of the world and thus its own research agenda in the coming years.

Thus the papers and proceedings in this volume should be seen as part of a process of longer-range analysis, consultation, and, eventually, adaptation to the constellation of global and internal forces that will shape our destiny.

The project was directed by Keith Newton, Senior Research Director at the Council, with the guidance of Harvey Lazar, Deputy Chairman. The team was assisted by an Advisory Committee, chaired by Council member Yves Guérard. On behalf of the Council, I would like to thank the members of the Advisory Committee for their valuable contribution to the design of this project, as well as the staff for their diligence and care.

We believe that Perspective 2000 poses a number of provocative questions about Canada's adaptation to a complex and rapidly evolving world. Foresight is at a premium in assessing the trends and discontinuities, the risks, challenges, and opportunities that lie ahead. I hope that this exercise will prove to be one small part of a more comprehensive and sustained effort of long-run assessment in Canada.

Judith Maxwell
Chairman

Introduction

As Canadians prepare to enter the last decade of the 20th century, they begin to look ahead to the prospects, the challenges, and the uncertainties of the next millennium. Mixed feelings inevitably accompany our visions of the future. Consider the economic front, for example. First, we have some reasons for optimism. Most notably, Canada continues to enjoy the fruits of the longest expansionary phase in postwar history. Living standards are high by international and historical standards. Employment has grown strongly since the mid-1980s, while inflation (up to the time of writing) has remained moderate. Canadian industry has undertaken a major program of restructuring and shows some signs of acquiring the technological sophistication needed to exploit the benefits of increasing trade liberalization.

Second, however, would-be visionaries must also acknowledge that pursuit of prosperity in closely contested global markets will bring major challenges of adaptation and adjustment. To use a sporting metaphor, to compete with the best we need not only natural ability, but a disciplined training schedule, too. To enhance productivity, technological innovation and human-resource development must be seen as ongoing processes that are vigorously pursued. Furthermore, despite strong employment growth in recent years, the jobless figures remain too high; real wages have stagnated for more than a decade; and disparities in regional economic performance persist. And while the country has enjoyed a prolonged expansion without accelerating inflation, there are renewed fears of a return to stagflation. The critical challenge of immediate concern (but with important medium- and long-run implications) is how to reduce the federal fiscal deficit, while extending the growth cycle and keeping inflation in check. Over the longer term, challenges appear in the form of distributional issues: What adjustments will be necessary to maintain the level and quality of social services required by an aging population? And what additional pressures on income distribution will emanate from the secular shift of employment from the goods-producing to the service economy?

Third, our view of the economic future is clouded by uncertainties. How will the world economy unfold? Will global trade and growth continue to expand? When will a new group of economies next graduate to "newly industrialized country" (NIC) status? Some doubts prevail about the destiny of our southern neighbour, since the declining economic hegemony of the United States, to which our fortunes are so closely tied, has inevitable consequences for our own economic development. Of more specific and immediate concern, will the United States take the necessary steps to rectify its fiscal and external deficit problems? Is the international economy likely to be characterized by greater stability, growth, and cooperation, or are we likely to see mutually impoverishing protectionism and exchange rate gyrations? Finally, recent history teaches us the inimical importance of shocks. The energy crises, the painful recession of the early 1980s, and the stock-market crash of October 1987 summon the spectre of the unknown but innate fragility in the economic system.

Such economic factors are undoubtedly important, but collective optimism or despair derive in large (some would say greater) measure from a variety of other domestic and global factors such as health, human rights and freedoms, international peace and security, and the viability of the biosphere. Thus, while we must recognize the increasingly global character of economic forces, it is of paramount importance that we recognize also that global economic trends and developments are themselves inextricably linked to the evolution of other "systems." That is, the march of geopolitical events, scientific and technological progress, demographic change, the evolution of the ecosystem, and the development of the global economy are highly interdependent and becoming more so.

It is well known, for example, that the pursuit of material progress has led to deforestation, desertification, pollution of lakes, rivers, oceans, and the atmosphere, and a change in world climate. Explicit recognition of this cause and effect relationship is manifested in the statement on the environment presented at the 1988 Economic Summit of the G-7 (Group of Seven) countries, and the concept of "sustainable development" espoused by the Brundtland Commission report.

The impact of economic "progress" on the environment is the example of systems linkage that has attracted the most widespread popular attention of late. But there is growing awareness of other important cause and effect relationships. Political decisions about defence strategy profoundly affect scientific research and technological advance. The ideological climate has important economic consequences: Will the pendulum swing away from privatization, deregulation, and faith in market forces towards a greater role for the state? Or will current trends continue? And how might the ideological climate affect the relative emphasis on the economic objectives of equity and efficiency? Indeed, one might ask whether acceptance of the need for a "linked-systems" approach to global and national issues could weaken the case for the current widespread reliance upon the market as the primary means of resource allocation.

To take an example of systems linkage closer to home, consider demographic trends in this country and abroad. Global population trends suggest rapid rates of growth of some of the poorest countries and raise the spectre of "economic refugees." Many cities are projected to grow to sizes that threaten economic, ecological, and social viability. Canada, with its huge land mass and low rate of natural population growth, will be under close scrutiny as a potential host. Such developments will force Canadians to fundamentally consider immigration policy in the years ahead, along with the economic, social, and cultural consequences of that policy.

One final set of crucial and equally complex linkages involves scientific and technological advance. For many, such progress has been a mixed blessing: advances in health are at least partly responsible for population pressure in some countries, and the adoption of nuclear energy can lead to a Chernobyl. At the same time, it is to science that we look for the means to avert disease, famine, and environmental decay.

Thus future well-being depends not only on global forces, but on forces that are not exclusively economic in nature. The concepts of purely "domestic" policy, therefore, and of policies formulated exclusively within the framework of a particular disciplinary approach, are rapidly becoming redundant. Correspondingly, the process of decision making is in need of critical examination. Are Canadian institutions keeping pace with the inexorable march of global change? In both the public and private sectors, there are important reasons for uneasiness about our capacity to respond optimally.

For example, Canadians continue to agonize over the structure and competitiveness of our industry. This involves more than just questions such as whether we should (or could) continue to rely so heavily upon natural resource endowments. It also involves questions that go right to the roots of the Canadian business psyche: Is entrepreneurialism insufficiently institutionalized because of some inherent aversion to risk and attraction to the comfortable and mediocre? Are Canadian managers less innovative than their counterparts in other countries? And, since countless studies now inform us that in the high-tech, knowledge-based marketplace of tomorrow, human capital will be our most valuable asset, what are Canadians doing to ensure that our educational and training institutions are up to the task? Given the emphasis on characteristics such as flexibility, versatility, and adaptability for the work force of the future, there are important questions as to the ways in which our labour market institutions will evolve. Will we rapidly adopt participative organizational designs and collaborative workplace behaviour? Will Canadian industrial relations witness the kind of drop in union membership that has occurred in the United States?

Public decision makers must also wrestle with institutional changes affecting the process of policy formulation. So close and so intricate are the linkages among global systems that policy problems will increasingly cut across the mandates of existing institutions. Technological change, the very centrepiece of some of our rosier visions of the next century, is not the exclusive domain of federal and provincial departments of industry, science and technology, for example. So powerful is its momentum, and pervasive its effects, that it requires an awareness and commitment by virtually every department of every level of government, and a level of horizontal coordination and cohesion unprecedented in time of peace. The urgency and enormity of environmental concerns call for the same kind of comprehensive and integrated approach to decision making.

At the same time, much of the consensus that has underpinned Canadian society in recent decades seems to have been weakened. In general, it may be that the recent state of federal-provincial relations is as good as – or indeed better than – what has prevailed through much of our recent history, and that Canada's approach to world affairs commands a significant measure of public support. But in many other areas, the society appears to have become more fragmented. Certainly, most commentators believe that economic consensus has been severely weakened; and the ongoing controversy over the Meech Lake Accord appears to reflect quite different visions of the Canadian future. More specifically, how do governments reconcile the competing claims of politically powerful social groups represented by well-financed, articulate lobbyists – the ultimate pluralistic society? And are we headed, paradoxically, towards greater devolution of political and economic power, towards balkanization and fragmentation, at the very time when world trends point to "internationalization," and the "global village"?

These are some of the kinds of questions that motivated the Council project that came to be known as Perspective 2000. Such questions, we believed, occupy the minds of many Canadians as they stand on the threshold of a new century. Many of the issues have, of course, been visited by the Council before: productivity and competitiveness, globalization, trade liberalization, technological change, and labour market adjustment are all themes of the Council's recent work. The distinguishing feature of Perspective 2000, however, is the unique combination of four characteristics. First, while it preserves a Canadian viewpoint, the approach is explicitly global in scope. Second, it takes account of a much longer time horizon than is usual in Council research. Third, while economic issues are of central concern, the evolution of other global systems is considered. Fourth, and most important, the significance of the linkages among those global systems is underlined.

A central objective of the exercise, therefore, has been to raise issues, questions, and concerns about the future within the global, long-run, "intersystem" framework just described. The approach has involved seeking out the views of experts in a number of fields: experts who would give us their visions, based on experience, rather than formal forecasts and new research. The aim was to help to inform the debates on some of the public policy issues that may be expected to unfold in the years ahead and to begin to identify priorities for the research agenda that must support the treatment of those issues.

In each of the four sections that follow, the reader will find summaries of the papers and discussions relating to each of the four major blocks of the Perspective 2000 Conference held in Ottawa on 30 November and 1 December 1988. The 12 papers and their corresponding commentaries by designated discussants then follow. It is hoped that this material represents not so much a one-time effort, but part of a concerted process of confronting and managing the challenges of a rapidly evolving world and the public policy issues they pose.

Perspective 2000

I The Global Setting

Global trends and developments will influence, more than ever before, the opportunities and constraints that will confront Canadians at the dawn of a new century. Accordingly, this section deals with major dimensions of those global developments. The first paper, by William Clark, discusses the "physical setting" – developments in the environment, technology, demography, and the interactions among them. The geopolitical situation and prospects are the subject of the second paper prepared by William Maynes. *Tendances lourdes* in the global economy, and some possible future scenarios, are discussed by Jacques Lesourne in the third paper of the section.

The World Physical Setting

Conventional visions of the 21st century, based on more or less sophisticated extrapolations of long-term trends, imply tremendous changes for the future. Consider some forecasts for the world's physical environment. A century from now, even with a decline in the growth rate of population, world population will reach 10 billion, doubling the present figure of 5 billion. Urbanization is expected to continue its headlong growth. Fifty years from now, 60 per cent of the world population will be living in cities, compared to 30 per cent 50 years ago. Life expectancy for the world as a whole has grown from 46 years in 1950 to 59 years in 1975, and is expected to reach 70 years by the year 2025. Infant mortality will continue its fall, to decline by the year 2025 to one fifth of the level that prevailed in 1950. Total energy consumption is forecast to grow sixfold over the next 100 years, even though the energy efficiency of production will continue to improve. The "greenhouse effect," though highly uncertain, is predicted by many scientists to bring a variety of environmental problems; including, for example, increased flooding in the Delta of the Ganges and reduced water availability for many Mediterranean countries. In the light of such prospects, Clark emphasizes the increasing complexity of interactions and feedback, and the enormous decision costs of policies that have to reflect global, long-term visions and take an interlinked-systems approach.

Even greater difficulties are caused, however, by the fact that some changes do not occur as a result of gradual extensions of long-term trends, but come, rather, in abrupt, discontinuous bursts. To learn to deal with surprises is, in Clark's opinion, a crucially important job of the future. He outlines some surprise scenarios developed at the International Institute for Applied Systems Analysis (IIASA) in which plausible and relatively minor demographic, technological, and ecological changes interact to create surprising major geopolitical and economic changes.

In order to learn how to deal with surprises, we need to be aware that a cumulation of relatively slow processes can result in catastrophically fast-occurring consequences, and that these catastrophes are often due to necessary (slowly developing) conditions meeting with sufficient (suddenly appearing) ones. One example is the increased economic vulnerability of the Sahel, where a sudden drought was sufficient to precipitate economic disaster.

What is needed for successful responses to the challenge of future surprises? We must acquire the necessary management skills and develop the techniques to deal with the unforeseeable, while keeping continuously in mind the interactions between economic development and the environment. Clark recommends that we engage in policy exercises; i.e., organized efforts of highly competent policy people, scientists, and technologists to develop "future histories" of plausible interactions between economic development and environmental change. If such exercises were conducted by sensitive and responsible team participants, Clark would foresee several important and useful results.

One of them is that such games provide an orderly framework for the investigation of future problems.

Second, policy games permit the exploration of policy responses and their time sequences in an internally consistent matter. For instance, in the U.S. investigation of the greenhouse effect, policy games explored the time it would take for nonfossil energy technologies to penetrate the market. This yielded useful insights on what energy policy can and cannot do to influence climate change. Specifically, Clark suggests that there are critical lags – in recognition, policy implementation, and effect.

A third useful outcome would be the clarification of future research priorities. By bringing together policy people and scientists, the exercise would reveal which answers and policy tools would be needed by policymakers across a range of plausible futures.

In Clark's opinion, one of the most valuable outcomes of the Perspective 2000 Conference would be several experimental policy exercises, each involving about a dozen informed and creative scholars and policymakers concerned with global change.

In his commentary on Clark's paper, Pierre Dansereau begins with a discussion of the nature and role of conventional wisdom. He regards items of conventional wisdom as part of human history that has proven advantageous (or at least not harmful) for the survival of the group holding such views.

But conventional wisdom is valid only as long as slowly changing *heavy trends* hold. Such trends are very apparent. Sudden changes (Clark's discontinuities) are heralded by *seed events*, but these are often hard to recognize as such, even in retrospect. For instance, a case could be made for the discovery of petroleum at Titusville, Pennsylvania, in 1859, as the seed event for the age of the internal combustion engine (including aviation), of urban sprawl, and possibly of environmental deterioration via the greenhouse effect. Another, more evident, seed event was the discovery of the transistor by Bardeen, Brattan and Shockley in 1947. Within less than 50 years, this discovery has led, among other things, to the development of the integrated circuit, robotics, satellites, the micro computer, computer-aided design and manufacturing, and to a whole revolutionary upheaval of information transmission and processing that is perhaps transforming human society more than any change since the development of agriculture. This illustrates that seed events result in surprises, which can be of many kinds and of various magnitudes and which can have a very useful function for mankind as sources of invention and discovery.

Echoing to some extent Clark's views, Dansereau insists on the multidisciplinary approach; pointing out, for instance, that economics must reach beyond its substance if it is to contribute to the larger theme of human survival through change. Similarly, it will be necessary to reconcile the methodologies of those who predominantly work with and express themselves in numbers, and those who do so in narrative. In such explorations the visions of the classics of literature are, according to Dansereau, just as useful as are simulations, scenarios, or mathematical models. Lucidity and discipline will be of crucial importance.

Many studies assessing the impact of human activities on the environment have proven to be of questionable value. No definitive method of research has emerged, partly due to the partial and uneasy borrowings between disciplines. Dansereau maintains that economists do not apply "explicitly ecological concepts ... such as exchange, sharing, succession, diversity, tolerance" – a statement economists might question. However, he maintains that many economic concepts penetrated into ecological thinking, such as budget, investment, efficiency, strategy, and productivity. Unfortunately, all too often the commissioner of an enquiry into the ecological impact assessment retains only short-term implications of the findings, because economic yield, not sustained balance, is his goal.

In conclusion, Dansereau presents a framework for environmental design to explore the connections between natural and social sciences.

The Global Political Setting

The interrelationships between technology, politics and economy, and the role of discontinuities mentioned in Clark's paper, are echoed in that of Charles William Maynes, which deals with the expected geopolitical changes of the 1990s.

Of course, the relationship between economic and political power has been emphasized at least since the time of Marx. Maynes acknowledges that economic forces will indeed play an important role in shaping political events, but he also emphasizes other important determinants. The unpredictable emergence of dominant personalities, as exemplified in recent years by Charles de Gaulle, the Ayatollah Khomeini, Mikhail Gorbachev, and Ronald Reagan, could be regarded as "discontinuities" in Clark's sense. However, the interaction between the technological and political systems is particularly pronounced in the case of military technology (the significance of the machine gun in the late 19th century, atomic weapons in the second half of the 20th century). The convergence of productivity among the industrialized countries and the dispersion of atomic capabilities by the year 2000 will have undermined the hegemony among the non-communist countries that the United States enjoyed at mid-century. "Smart weapons" are unlikely to confer hegemony on any other single country. While Maynes believes that no rational government would launch a nuclear attack that could result in a nuclear response, diplomatic considerations and the recent gains in religious fundamentalism emphasize the need for the reduction of nuclear arsenals and the development of a new system of international security that does not rest predominantly on the nuclear deterrent.

The dominating influence of the United States has also declined in the non-military field. Japan has become the world's leading capital exporter, due to its high saving propensity. Nor is the United States the main societal model for the rest of the world: the racial problems of the 1960s, the foreign policy problems of the 1970s, and drugs and crime in the 1980s have undermined the prestige of the United States. The sources of economic strength are shifting from resources to knowledge; and this has profound effects for the distribution of prosperity and power. The decline of deference towards authority and the spread of literacy and information (through direct-dial telephone, video cassettes, short-wave radio, personal computers, and satellite dishes) are having widespread impacts on all the nations of the world.

As for the future, Maynes expects that the First World (the developed western states) will experience the end of their imperial age. This will be due less to a weakening of the Soviet challenge, than to rising Third World resistance and the desire of the First World to disengage. However, this disengagement may also extend to the First World's international efforts to foster economic development.

For the Second World (the communist states), Maynes predicts the end of the revolutionary age. No longer will enormous numbers of people be sacrificed for the sake of a theory. Now that the leaders of the Eastern European countries have publicly acknowledged the economic and social shortcomings of communist practice, reform will take over from revolutionary change.

The Third World countries will witness the end of the anti-colonial age. Domestic economic development will be their main challenge, but in sub-Saharan Africa, the problems will be particularly acute: few of the states there are economically and politically viable. So while in the rest of the world the need is for more decentralization and for the unleashing of individual initiative, in Africa the need is for consolidation and the establishment of viable political and economic units, preferably through voluntary cooperation.

These international developments may lead to more effective institutions of international governance or the formation of regional blocs. The European Economic Community (EEC) has developed ties with African states, Japan with Southeast Asia, and America with the Caribbean basin. While this is better than anarchy, it is inferior to a well-governed multilateral world. The chances for improved institutions have grown with the rise of Gorbachev and the recent election of a U.S. president who is more internationally minded than his predecessor.

John Kirton shares the opinion of Maynes that the relative position of the United States has deteriorated and will continue to do so. In the past, declines of leading world powers have increased international instability and have led to major wars. Kirton thinks this will not happen in this case. The United States is attempting to moderate its decline by what Kirton calls "national capability enhancement" through "major incremental decreases in military expenditures . . ." and through the massive inflow of direct foreign investment, though he leaves unmentioned that the bulk of this foreign capital inflow has been spent on private and government consumption. Also, the power gained by the major industrial democracies (Japan, West Germany, France, Britain, and Italy) is widely diffuse; and this group of successors is largely on the U.S. side. Furthermore, Kirton doubts that the United States will retreat into isolation, unilateralism, and protectionism.

Kirton especially emphasizes two aspects of the interaction of technology and geopolitics. Space technology is now playing the role that naval and air technologies used to play in the past. The Strategic Defence Initiative (SDI) will never provide complete defence to any country (if it did, it would restore superpower dominance again). Nevertheless, Kirton foresees an intensifying SDI science race between the two superpowers; and this will create a major arms-control challenge.

Another technological achievement – television and related information-transmitting and -receiving – will, according to Kirton, help us to rise to this challenge. Television is having a major effect on foreign policy through saturation coverage of international, political, and military events and is raising cosmopolitan consciousness, at least in the West. Through appropriate technologies (observation satellites, and so on), it is contributing to the environmentalist revolution and is thus helping far-sighted politicians such as Prime Minister Brundtland of Norway.

The proliferation of direct satellites and miniature receiving antennae will render it more difficult for governments to control their citizens. Minorities will gain new tools to reinforce their common cultural nationalism. For instance, the easy availability of West German television in East Germany is helping to keep alive the consciousness of a single German nation and may eventually lead to reunification.

Kirton declares the United Nations a poor institutional base for building a new international order. It is a slave to history and lacks the flexibility to reflect properly the new realities of power, in particular, the economic strength of Japan and West Germany. Kirton thinks it is unlikely, for instance, that West Germany and Japan would obtain veto power in the Security Council, or that a Japanese would be appointed the head of the World Bank. As Maynes, he sees the formation of new power blocs: West Germany as the economic core of a new Europe with special interests in its relationship with the Soviet bloc and Africa; Japan as the leading power of an Asian system seeking a new accommodation with China; and the United States with the rest of the American continent.

The early sign of an alternative, and preferable, focus of international institutions is the seven-power summit system (the G-7 countries). These summits attract much more media coverage than, say, the United Nations General Assembly or the NATO heads of government meetings, and with good reason. The summit has shown itself capable of adjusting to the new strength of Japan and West Germany; created or reinforced new institutions in trade and finance; energized and directed older institutions; concerned itself with the political and security issues of arms control, South Africa, and the Middle East; and reached out to new areas such as terrorism, drugs, and the environment. Its main future challenge is to transform itself into an institution that can pursue a relevant dialogue with the Soviet Union and China and deal more systematically with the economic problems of the South.

The World Economy

Economic developments constitute the third major dimension of the linked global systems considered in this section. Jacques Lesourne's paper on the international economy starts with an historical review of the period 1950-88. Echoing themes raised by Clark and Dansereau, he derives certain major trends (*tendences lourdes*) which he expects to last well into the next century. These are:

a) continuing erosion of the relative strength of the United States and a tendency towards *multipolarity*, that may take the form of a U.S.-Japan duopole, or possibly of a U.S.-EEC-Japan triad;

b) rising *interdependence*, going beyond the traditional form of external trade in goods, and extending to unprecedented flows of information, technology, and capital. This goes hand in hand with fusing multiple markets into a single market and creates transnational enterprises, research institutions, and intergovernmental organizations. It reduces the room for manoeuvre of national governments;

c) *convergence* in the productivity and standard of living of the industrialized countries and *a widening development gap* between the newly industrialized countries (NICs) and the rest of the Third World;

d) *change in the technical paradigm* (a transformation of the relations between the technical system, the economy and society) caused by the emergence of new information technologies and which may be followed by another paradigm change caused by developments in biotechnology; and

e) continuing *growth of population*, mainly in the Third World, and *urbanization*. This will result in a relatively young, strongly growing, and poor population in the South; and an aging, relatively stable, and rich population in the North, with strong pressures for migration.

These trends play a crucial role in Lesourne's outlook for the international system, which he discusses at considerable length by geographical regions, and trade flows by commodity groups, including services. What, he asks, is the future of the regulatory mechanisms, particularly the international monetary system and international trade regulations? And what are the roles and influence of the main actors on the economic scene who can accelerate or retard economic globalization – namely, multinationals, medium-sized businesses, unions, governments, and public services? Lesourne concludes by sketching three scenarios for the future of the Organisation for Economic Co-operation and Development (OECD) countries.

In Lesourne's first scenario, the United States attempts to reduce its current-account deficit by protectionist measures. This increases the pressure exerted by exports of Japan and the NICs on the European markets, leading in turn to European protectionism and Japan being forced to target Asia and the Third World markets. Such a scenario would leave the U.S. economy relatively well-off, Japan only partly capable of compensating for the loss of the U.S. and European markets, and the EEC definitely worst off among the triad. Canada would have two choices: to try to develop its trade with East Asia and the rest of the Third World, or follow policies similar to the United States and thereby become, in effect, a part of a more fully integrated North American economic community.

The possibility that the scenario of extreme protectionism will occur is judged to be quite small, but a milder form of protectionism is more likely. Still, some other scenarios are more probable.

In the second scenario, international cooperation proceeds slowly, while international trade remains relatively open. In such an environment, continuing U.S. balance-of-payments difficulties would lead to a further sharp fall of the U.S. dollar, followed, after a lag of several years, by a shrinking foreign-account deficit and a strong recovery in the value of the U.S. currency. This scenario implies considerable worldwide fluctuations in exchange rates and foreign trade flows. As long as the value of the Canadian dollar is closely tied to that of the United States, this scenario would imply wide fluctuations against the Deutschemark and the yen. The likelihood of such a scenario is relatively high.

Much preferable would be a third scenario, involving intergovernmental cooperation within the G-7 countries. In this scenario, certain key ingredients are necessary to provide an environment for Canada to optimally diversify its foreign economic relations. First, it requires agreement on macroeconomic policies to keep exchange rates relatively stable and maintain approximate balance in trade. Second, it requires that microeconomic regulations be devised in such a manner as to find a compromise between national security and international competition, and also to prevent abuses of economic power by gigantic multinational corporations. Unfortunately, such a scenario involving governments taking a responsible stand on events beyond their borders is unlikely, short of a deep recession in the United States spreading to the world economy.

Lesourne concludes his paper by listing the main policy issues of the future for the international economic community in general and for Canada in particular.

For the international community, the main macroeconomic issues will centre around the reduction of trade imbalances and the control of exchange rates and the successful resolution of the Third World debt crisis, particularly that of Latin America. In the field of microeconomic policies, those dealing with international trade in agricultural products, high-tech industries, and the markets of service industries will predominate.

From Canada's point of view, it will be a significant point whether the relationship of the United States with Japan and the EEC will be an asymmetric one, with the United States playing a dominant role, or a more symmetric one. Also, the growing influence of the Third World economies, particularly of the Asian NICs, will be increasingly important, while the poorest countries, notably those of sub-Saharan Africa, will need continued Canadian help. From this follow the most important questions for Canada.

- What shall and can be Canada's course of action, should the United States follow a protectionist policy versus the Asian economies?

- What would be the impact of the wide exchange rate swings implied in the previous second scenario?

- While an asymmetric configuration of the triad would lead to less close relationships between Canada and Europe, what would be the effect of a symmetric one?

- What will be the role of the high-tech industries and exportable services in the Canadian economy?

Lesourne's paper also contains an extensive appendix containing data on Canadian foreign trade by category and region for the 1967-86 period, and also Canada's comparative advantage in selected products.

Gilles Paquet sees Canada's main problems very differently than Lesourne. In his *contre-rapport*, Paquet maintains that Canada suffers from arteriosclerosis. He enumerates what he regards as a long list of symptoms:

- an aging population, with declining entrepreneurship and willingness to take risks, rigid wage structure, and continuing high unemployment;

- our financial system is characterized by an erosion of the domestic regulatory framework, increased instability, federal-provincial jurisdictional squabbles, and growing transnational presence;

- the lack of data to analyse the growing service sector;

- the degradation of Canada's agricultural resource base, marketing boards that are not efficiency minded, a need for a slim-down of the industry combined with the development of the necessary knowledge infrastructure to develop into biotechnology;

- the commodity sector is unable to stand up to the monopolistic market power of foreign buyers – it needs a policy of managed trade;

- the declining industries (e.g., leather, fabric, and clothing) need state intervention for the orderly phasing out of fabrication and are in need of aid for the development of better design;

- our high-tech sector needs to find the right niches in this highly competitive field. We also have to disseminate the best existing technology;

- there is a high degree of social "dissensus" because: the young cannot hope to reach the level of economic welfare their parents have achieved; province-building policies are increasing in importance; social groups whose expectations are disappointed try to exert socio-political pressures; language, race, and gender have become nontariff barriers between groups in Canada; the easing of immigration laws and the current multicultural policy inhibit the smooth absorption of new immigrants; the different levels of government compete in offering protection to the various interest and pressure groups, leading to an increasing balkanization of Canada; and there is more concern about distribution than about wealth creation.

All this distorts the information base needed for decision making and also delays decisions. Classical free trade will not cure our problems. What Canada needs is the dismantling of the distributional coalitions; however, these will demand protection from foreign competition. Openness can also be interpreted as threatening the fabric of "Canadianness" and political entrepreneurs will promote the creation of new distributional coalitions.

As a better alternative, Paquet advocates managed trade, i.e., an offensive strategic trade policy and targeting policy. With increasing returns to scale and imperfect competition, an offensive strategy ("creating" one's own winners) is a valid one for open economies. Managed trade is not classical protectionism; it encourages specialization and allows trade to expand. In a dynamic world of imperfect competition, static allocative efficiency rules are not as useful as they would be in a static world of perfect competition. Offensive protection may help to transform a passive firm that reacts to market conditions into a leader that sets them. There are also distributional situations calling for government intervention, as when one trading partner appropriates all the gain from international trade.

According to Paquet, managed trade can be feasible, acceptable, stable, and implementable. He thinks strategically selected formal and informal barriers to trade can help create winners. This is shown by the success of some countries, even though he admits that many regard the managed-trade approach as wrong-headed.

As for the fairness problem, he points to recent traditional developments in arbitration matters. He suggests that this approach (arbitration using binding final offer selection) should be used by the Trade Pact Commission to resolve disputes between Canada and the United States, instead of the present "bilateral protectionism." He emphasizes that the development of managed trade requires interactive planning between bureaucrat-technocrats, stakeholders in the policy game, and the many groups on the periphery who have local knowledge of the problems. In this respect, Paquet's formula for the development of managed-trade policy resembles Clark's policy gaming.

Paquet regards the development of such an offensive protectionist approach as the main task of the next decade. He views it as more promising than either defensive protectionism or textbook free trade.

Conference Discussion

In the discussion of the global environment, the conference participants displayed a high degree of consensus. They all agreed that the world of the year 2000 will be driven by rapid technological change, fuelled by the information revolution. Productivity of those countries that can master the modern technologies will continue to converge. The countries that have the highest standards of living, including Canada, will increasingly have to specialize in knowledge-intensive industries, leaving the more traditional ones to the developing countries.

The leading role of the United States in the political, military, and economic fields has been eroded and is being replaced by a world clustered around three principal centres: the United States, Japan, and the European Economic Community. This multipolar world has been rendered highly interdependent, not only by modern military technology and the international effects of ecological change, but also by the increasing internationalization of economic flows. The international flows of goods and capital experienced in the past have increased to an unprecedented degree. In addition, the flow of knowledge and the trade in services have increased international interdependence. The need for successful management of international governance is crucial at a time when the declining hegemony of the United States is becoming more and more obvious.

During the discussion of the Block I conference papers, several speakers emphasized that the organizers and speakers of the conference had neglected an important fourth system: the socio-cultural system.

The general discussion brought out that, while each of the four aspects of the world are, in effect, a web of interrelated forces constituting a system, they are also interrelated with each other, thus forming an extremely complicated supersystem. This was illustrated by Clark's reply to a question from the floor:

> Even though we now have the technology to change the climate of the Canadian North to some extent, such a change would also change the geography, the economy, the socioculture, and the politics of the North. We do not have the knowledge to say what the changes in these fields would be and whether they would be desirable.

The session concluded with an impassioned declaration from the floor by a biologist who challenged the thinking of economists who take for granted that more production and consumption is better, when such a policy is, in his opinion, bound to inflict catastrophic damage on the environment.

1 Visions of the 21st Century: Conventional Wisdom and Other Surprises in the Global Interactions of Population, Technology, and Environment

William C. Clark[1]

The Brundtland Commission's recent report, *Our Common Future*, makes a compelling case for the global connections among economic development, military security, and physical environment. A central challenge of the coming decades is to learn how the interactions described by the Commission can be better managed to improve the prospects for sustainable improvements in human well-being. Management is not the same as prediction. The distinction is an important one, for management can be improved despite the enormous uncertainties and downright ignorance that will continue to make detailed predictions illusory.

The Perspective 2000 project as a whole can be seen as an effort to illuminate the opportunities and constraints that bear on the management of sustainable development in the next century. Within that broad objective, my goal in this paper is to sketch the physical context of the management problem: the ways in which human populations, their technologies, and the environments they transform set the stage on which economic, social, and political changes are played out.

The Changing Stage

That physical stage is rapidly changing.[2] It holds twice as many people as it did in 1950; four times what it did in 1850. World trade has increased more than twentyfold over the last century; energy use, more than one hundredfold. This increasing magnitude of human activity has brought about an increasing scale and complexity of interactions among humans, their technologies and environments. What were once local incidents of pollution shared throughout a common watershed or air basin now involve multiple nations – witness the concerns for acid deposition in Europe and North America. What were once acute episodes of relatively reversible damage now affect multiple generations – witness debates over the disposal of chemical and radioactive wastes. What were once straightforward questions of ecological preservation versus economic growth now reflect complex linkages – witness the feedbacks among energy and crop production, deforestation and climate change that are evident in studies of the atmospheric greenhouse effect. What once seemed a relatively well-behaved world of smooth and predictable trends increasingly reveals a propensity for abrupt and unexpected change – witness the surprise and consternation of scientists and policy people alike confronted with the appearance of the Antarctic ozone hole.

Thus, as it approaches the 21st century, humanity is entering an era of chronic, large-scale, and extremely complex *syndromes* of global interdependence. Relative to earlier generations of problems, these emerging syndromes are characterized by profound scientific ignorance, enormous decision costs, and time and space scales that transcend those of most social institutions. The managerial challenges posed by this changing stage can only intensify over the next century as the number of people on earth, their industrial production, and their demand for agricultural products increase doubly and more.

In addressing the management challenges of global interdependence, we, the people of the world, must ultimately evolve agendas for action reflecting shared perceptions of the central issues and choices before us. But if those agendas are to reflect more than parochial views of single issues, nations, and generations, we must invent global, long-term visions of the changing world we seek to manage. Such visions are not mechanistic predictions of what will be, but rather imaginative though disciplined perspectives on what could be. The importance of the visions will not lie in their details, but rather in how they are used.

Many visions of the opportunities and constraints inherent in the global interdependence of the next century exist. Making such visions more useful for management has been the subject of a major research effort I have been conducting over the last several years under the auspices of the Program on Sustainable Development of the Biosphere at the International Institute for Applied Systems Analysis (IIASA). Many colleagues at the IIASA and elsewhere have contributed to the findings I report below, though none should be held responsible for the particular use to which I here put our results.

The Issues

The IIASA effort has suggested that in order to shape more useful visions of possible interactions among people, technologies, and environments in the next century, four underlying issues must be addressed.

The first is space. It has become a commonplace that solutions to problems in an interdependent world require the ability to "think globally, while acting locally." In practice, however, people spend most of their time in a few places – visions of the globe as a whole, and of the diversity of localities that make it up, are equally hard to come by. In what follows, I therefore sketch parallel pictures of global and local (or at least regional) change. To keep the exercise manageable, I focus on two contrasting regions whose high densities of present development may offer a model of things to come elsewhere in the world: Europe and the Indian subcontinent.

The second central issue is time. Global population growth has a momentum measured in generations. Many of the environmental problems that face us today involve the cumulative effects of many decades of human activity. Changes in the basic technologies that determine how we transform the physical stage of our planet can take as much as half a century from inception to full implementation on a global scale. One of our greatest challenges in shaping visions of the future is to see beyond the personal near term and capture the constraints and limitations imposed by long-term global change. Historical perspective has proven to be invaluable (though potentially misleading) in this regard. I therefore adopt for the visions presented here, a time horizon looking a century into the past and a century into the future.

Our third issue of concern is in a sense the inverse of the first two: the central role of abrupt or discontinuous change in shaping the world stage. Most visions of the future are based on an evolutionary paradigm that involves the gradual incremental unfolding of the world system through time and, to a lesser extent, across space. But by leaving out the external shocks, nonlinear responses and discontinuous behaviour so typical of social and natural systems, evolutionary perspectives leave us unprepared to interpret a host of not-impossible eventualities. By leaving out the social learning called into play by the resulting surprises and crises, they also reduce the challenge of adaptive management to a sterile effort to correct past mistakes. In an effort to complement the conventional surprise-free visions of the future, I develop here an explicit look at some abrupt changes in human, technical, and environmental systems that could have a major impact on the global management challenges of the next century.

Fourth, an effort to provide more useful visions of the 21st century must confront the complexity and contextual richness of the reality we seek to manage. It remains extremely tempting, indeed almost necessary, to focus on a few characteristics of the human population, a couple of highly visible technologies, and one or another particularly alarming environmental change. Yet peoples, places, and things *are* connected; and it is often the subtle, neglected aspects of those connections that underlie some of the most important problems and opportunities that we face. In attempting to address the resulting dilemma, we encounter what historian William McNeill has called the gulf between "numbers" and "narrative" in styles of picturing past and future histories. Neither style is sufficient; both are necessary. The challenge is to experiment with ways of combining them creatively in ways that stimulate disciplined thought about the changing world around us.

Organization of the Argument

The remainder of this essay is organized as follows. The section on conventional visions examines long-term trends in the world's population, technology base, and environment. A variety of historical reconstructions are used to portray changes of the past century. Standard forecasts by the United Nations, the World Bank and other official bodies are combined to fashion a "conventional-wisdom" vision of the next 100 years. The objective of this exercise is not to endorse or critique any of these forecasts. Rather, it is to illustrate the kinds of assumptions about future physical environments of the world that underlie the majority of contemporary scholarship and government planning.

The section on alternative visions examines strategic variants of the conventional visions portrayed in the following section. It does so by sketching a sampler of events, inventions, discoveries, and developments that would be at odds with conventional wisdom, and would thus constitute surprises challenging our management skills and institutions. The objective is not to debate the likelihood of such surprises. Rather, it is to suggest how different from our conventional assumptions both the physical world and the management challenges of the next century could be.

Finally, the last section returns to the central management theme of this essay. Its objective is to characterize an approach for using our visions of the 21st century to evaluate alternative policies and strategies. Experience with war gaming is reviewed and its possible adaptation to problems of managing global change is discussed. The central argument is that some such means of "practising the future" will be necessary if politicians, planners, and publics are to get better at the tasks of managing an increasingly complex, interconnected, and uncertain world.

Conventional Visions of the 21st Century: Historical Trends and Future Change

Clearly, efforts to predict the future with any precision are indefensible. But trends do exist – if only to be broken. And thinking of the future in light of an explicit and critical consideration of those trends, their origins, and their meanings is almost certainly better than just hoping that things will work out. In the case of population, technology, and the environment, history teaches us that what we as societies choose to do, does indeed alter the future world we face and the options we have within it. Unfortunately, our conscious efforts to design our choices are most often dominated by short-term crises and narrow institutional or national perspectives. We therefore have a responsibility to look, as carefully as we can, at where long-term, global trends may be leading us, how they might change, and what we can do now to increase the chances of managing a future that is to our liking.[3]

An increasing recognition of this responsibility, coupled with the increasing scale and complexity of human activities, has sparked in recent decades a growing industry of global forecasting and prediction. Differences of opinion certainly exist among different forecasting groups and institutions. More remarkable than the differences, however, is the degree of convergence that exists in the visions of likely population, technology, and environmental futures advanced by established national and international groups (e.g., the United Nations, the World Bank, the International Energy Agency, the Population Reference Bureau, and so on). Though we may argue about why such convergence develops, whether it is a good thing, and what it means, the fact remains that there exist some widely shared "conventional wisdom" visions of the next century. In the following paragraphs, I sketch some of the central ground shared by those visions as they apply to population, technology, and the environment, drawing on a recent project of the IIASA.[4] This synthesis of the "conventional wisdom" (or, as many would have it, "the conventional foolishness") is then contrasted in the next section with several unconventional alternative visions of the 21st century. Out of a deep conviction that past patterns of global change have a great deal of relevance for those thinking about future patterns, a historical dimension is included in the analysis.

Population

A century ago, the world's population of about 1.5 billion people was growing at 0.5 per cent per year. A century from now, most forecasts suggest a population of about 10 billion people, with declining growth rates of significantly less than 1 per cent per year. Today, with a population of a bit more than 5 billion and a growth rate that has only recently dropped below 2 per cent per year, we are in the middle of what Kates and Burton [1986] have called "The Great Climacteric": a critical period, more persistent than a crisis, where significant change and unusual danger may occur. This global pattern of maximum population growth rates in the second half of the 20th century, with slower growth rates both before and after, is expected to hold for most major regions of the world (Chart 1-1). The highly uneven distribution of the human population across the earth's surface has significant implications for where its use of technologies is most intensive, and what consequences this use has for the environment.[5] The most densely populated 10 per cent of the planet's land area provides a home for more than half of today's population. Three quarters of the population can be found on the most crowded 20 per cent of the land (Chart 1-2). These relationships were not much different 100 years ago, nor do they seem likely to change much in the coming century. Most of the earth has always been relatively empty of people; a few regions have consistently supported densities far higher than the rest (see map on page 12). The big changes in distribution have occurred not at the global but at the regional scale. Fifty years ago less than 30 per cent of the world's population lived in urban areas; 50 years from now that fraction is expected to have doubled [United Nations, 1980 and 1985].

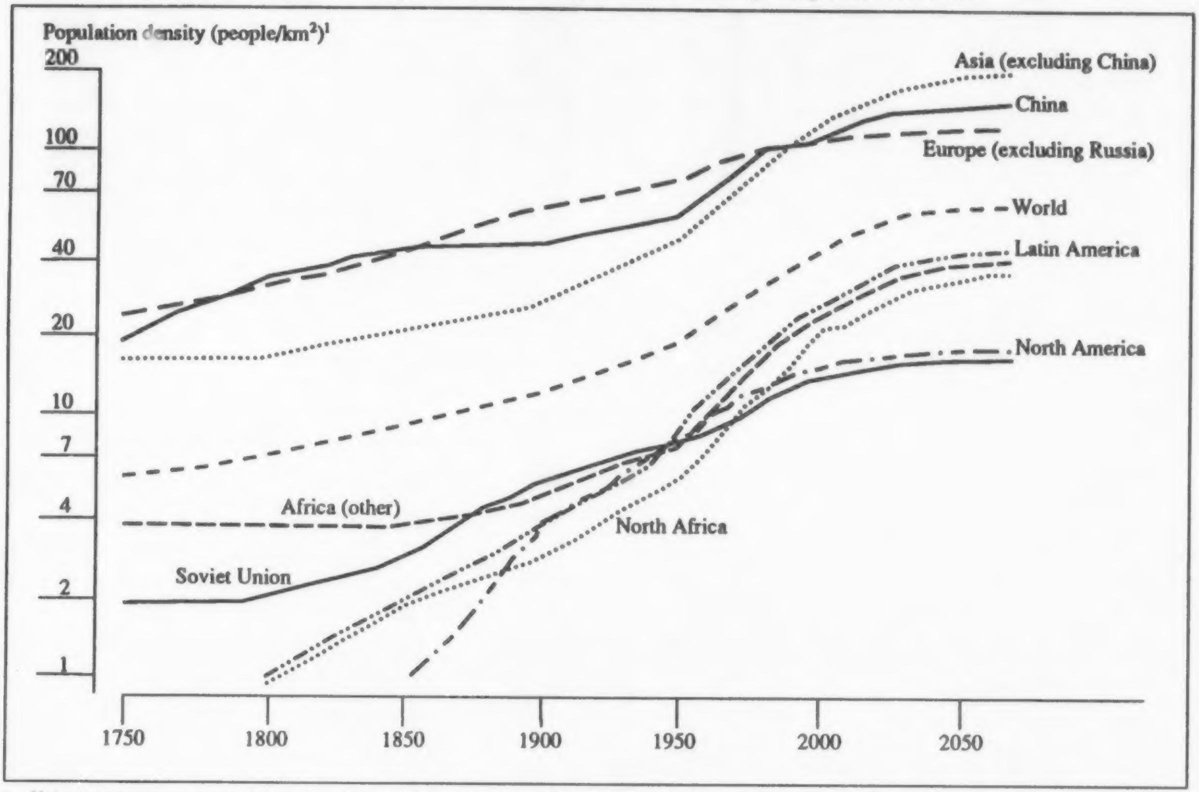
The quality of the population is changing even more dramatically than its quantity. Two useful indicators are infant mortality and life expectancy at birth.[6] As a benchmark, some of today's best national values for these quality indicators are obtained in the Netherlands: infant mortality is 8 per thousand live births and life expectancy at birth is 76 years. For the world as a whole, life expectancy at birth rose from 46 years in 1950 to 59 years in 1975, and is expected to reach about 70 years by 2025. Comparable progress can be seen in the infant mortality rate. This was halved between 1950 and 1975, and is expected to reach about 30 per thousand by 2025. Regional variations in population quality are suggested by the data for Europe and India shown in Table 1-1: the gap between the rich and the poor remains, but is clearly declining. To the extent that the wisdom of these conventional forecasts is borne out, significant aspects of population quality in India should reach levels better than those of postwar Europe within our lifetimes.

Technology

The changes in the earth's physical stage brought about by human population growth per se are dwarfed by the changes mediated through the technologies people use to

Chart 1-1

History and Projections of Human Population Densities, World and Large Regions, 1750-2050



1 Units are people per square kilometre of land surface, plotted on a logarithmic scale.

SOURCE W. C. Clark, "Sustainable development of the biosphere: Themes for a research program," in *Sustainable Development of the Biosphere*, eds., W. C. Clark and R. E. Munn (Cambridge, Mass.: Cambridge University Press, 1986), pp. 3-48.

pursue their wants and needs. Over the last century, while the earth's population was tripling, its total manufacturing production rose more than fiftyfold. A significant portion of this production entered international trade, which increased by a factor of 25 over the same period [Rostow, 1978]. In general, this explosion of technology has allowed people to produce and exchange more (and more varied) goods, services, information, and violence, with greater speed, at lower costs, and on an increasingly global scale. In the process, technology has quite simply transformed the face of the earth and the life of humanity. Whether and how this continuing transformation can be managed to yield sustainable improvements in human well-being for the 21st century is one of the central questions of our time.

Despite the great richness of technological activities in which people engage, a few major areas of application are generally accepted to have the greatest direct impact on the long-term, large-scale relations among human populations and their physical environments.

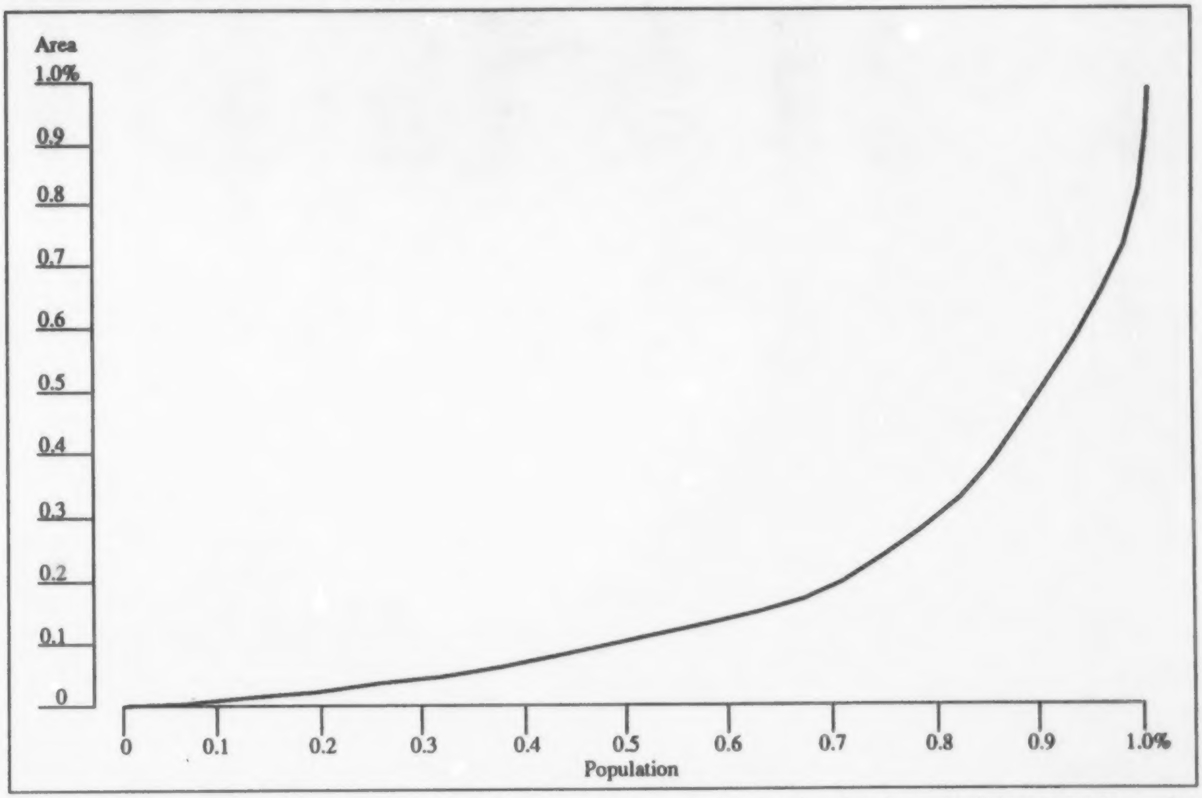
Health and Agriculture

The continued development and application of public health technologies for water purification, vaccine administration, and the elimination of the most lethal pathogens are implicit in the dramatic improvements of life expectancy and infant mortality already quoted in the forecasts of Table 1-1. The studies underlying these numbers forecast no qualitative breakthroughs in health technologies available at a global scale, but neither do they allow for any qualitatively new diseases such as AIDS on the global scene.

Health and food are closely related at local and global scales. Total world agricultural production has risen by a

Chart 1-2

Cumulative Distribution of World Population on the Earth's Land Surface, 1975



NOTE These "Lorenz" curves are formed by ranking the countries of the earth from most densely to least densely populated, then plotting the cumulative proportion that occurs on increasing fractions of the earth's total land area. Thus, for example, the most crowded 10 per cent of the earth provides a home for almost 60 per cent of its population. The curve shown here is for 1975. The curve derived from conventional forecasts of population in 2075 is virtually indistinguishable from this one.

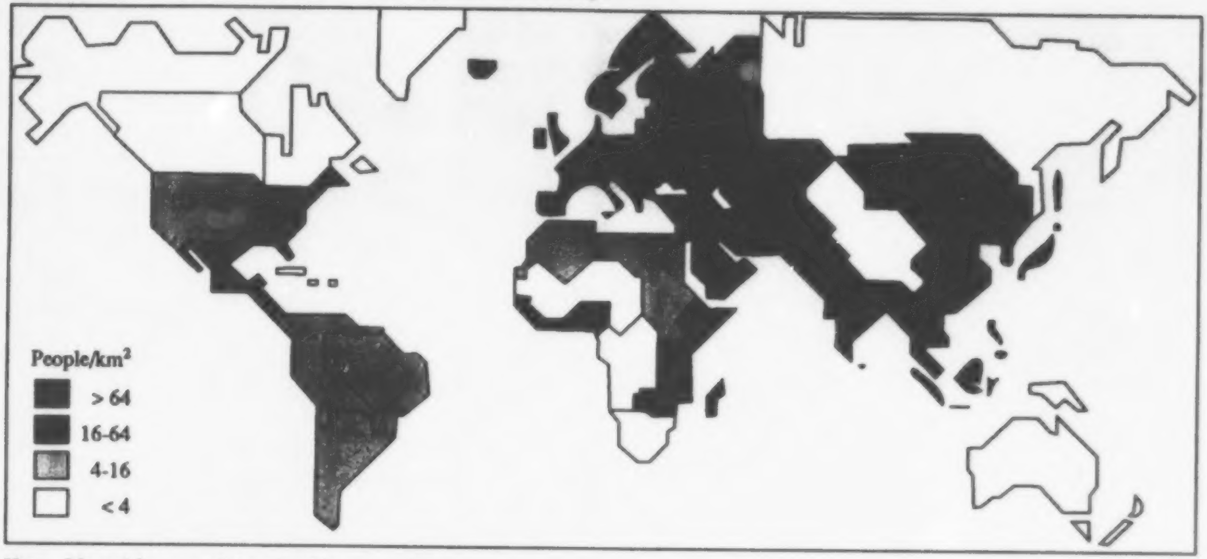
SOURCE Clark, "Sustainable development of the biosphere."

factor of a bit more than 5 in the last century. A further increase to twice the present levels by 2030, and three or four times the present levels towards the end of the next century is thought likely by many experts (Table 1-2). Less than half of the past increase and rather little of the future increase will come from the expansion of arable land. The key factor is increased yields derived from techniques to improve genetic stocks, cultivation, fertilizer applications, and control of pests and diseases. The level and character of technological inputs actually applied make a tremendous difference in the ability of the land to support people. Long-term agricultural carrying capacities in India, for example, have been estimated to be two to three times higher under a regime of maximum technical inputs than under a regime of minimum inputs. Even in the technologically advanced U.S. agricultural system, aggressive programs of R&D have been estimated to double the national productive capacity that would be expected by 2030, under a continuation of present R&D funding [Johnston and Wittwer, 1984]. The kinds of technological progress required to realize these forecasts vary greatly from place to place; the challenge is to design technologies appropriate for local, environmental, social, and economic conditions. Generally, however, progress will be needed in agro-ecological characterization, techniques to increase the efficiency of fertilizer and water use, biotechnology, improved production systems, and training [Oram, 1988; York, 1988].

Energy

Total world energy consumption has risen by a factor of 25 in the last century and has been predicted to increase

Geographical Distribution of Current Population Density[1]



NOTE Mapped for areas of about 5 million square kilometres.

1 The density scale is geometric.

SOURCE Clark, "Sustainable development of the biosphere."

another factor of 6 over the next 100 years (Table 1-2). In 1875, world energy was probably derived about equally from wood and coal with the market share of the former decreasing and the latter increasing. At present, fossil fuels dominate the global scene – a situation that most analysts believe will persist through the first half of the next century despite advances in biomass, solar and nuclear technologies (Chart 1-3). What will change is the composition of the fossil mix, with the share of oil declining and that of fuels derived from coal and shale increasing. The potential share of natural gas is a subject of contemporary debate [C. Starr, 1988].

Table 1-1

Population Quality Indicators, 1950, 1975, and 2025

	Year		
	1950	1975	2025[1]
		(Years)	
Life expectancy at birth			
World	46	59	71
Indian subcontinent	39	53	72
Europe (excluding Russia)	65	72	77
		(Per thousand)	
Infant mortality rate			
World	156	77	30
Indian subcontinent	190	126	35
Europe (excluding Russia)	62	19	7

[1] Figures for 2025 are for the "conventional wisdom" (CW) scenario described in the text.

Table 1-2

Relative Indices of Development under Alternative Scenarios, 1875 and 2075

		Year and scenario[1]		
	1875	2075 CW	2075 F1	2075 F2
		(1975 = 100)		
Population size				
World	36	250	190	500
Indian subcontinent	38	310	240	450
Europe (excluding Russia)	53	145	100	300
Agricultural production				
World	18	380	250	750
Indian subcontinent	32	420	500	650
Europe (excluding Russia)	54	230	260	200
Agricultural land				
World	52	120	120	150
Indian subcontinent	50	105	95	105
Europe (excluding Russia)	89	90	130	70
Energy use				
World	4	580	500	1,200
Indian subcontinent	14	1,030	1,600	1,600
Europe (excluding Russia)	10	455	130	700

[1] Figures for 2075 result from the following scenarios, as described in the text: CW – conventional wisdom; F1 – Friibergh 1, "The Big Shift"; and F2 – Friibergh 2, "The Big Load."

Environmental and economic pressures can be expected to continue long-term trends of improvement in overall energy efficiency: the ratio of energy to GNP in the United States, for example, has been halved since it peaked in the 1920s (Chart 1-4). This trend is likely to be associated in the future, as it has been in the past, with increasing electrification of the energy economy. Technologies that could be tightly associated with such increased electrification include: superconductors, organic plasma chemistry and electrochemistry, electrochemical approaches to toxic waste management, and electric vehicle commercialization [C. Starr, 1988].

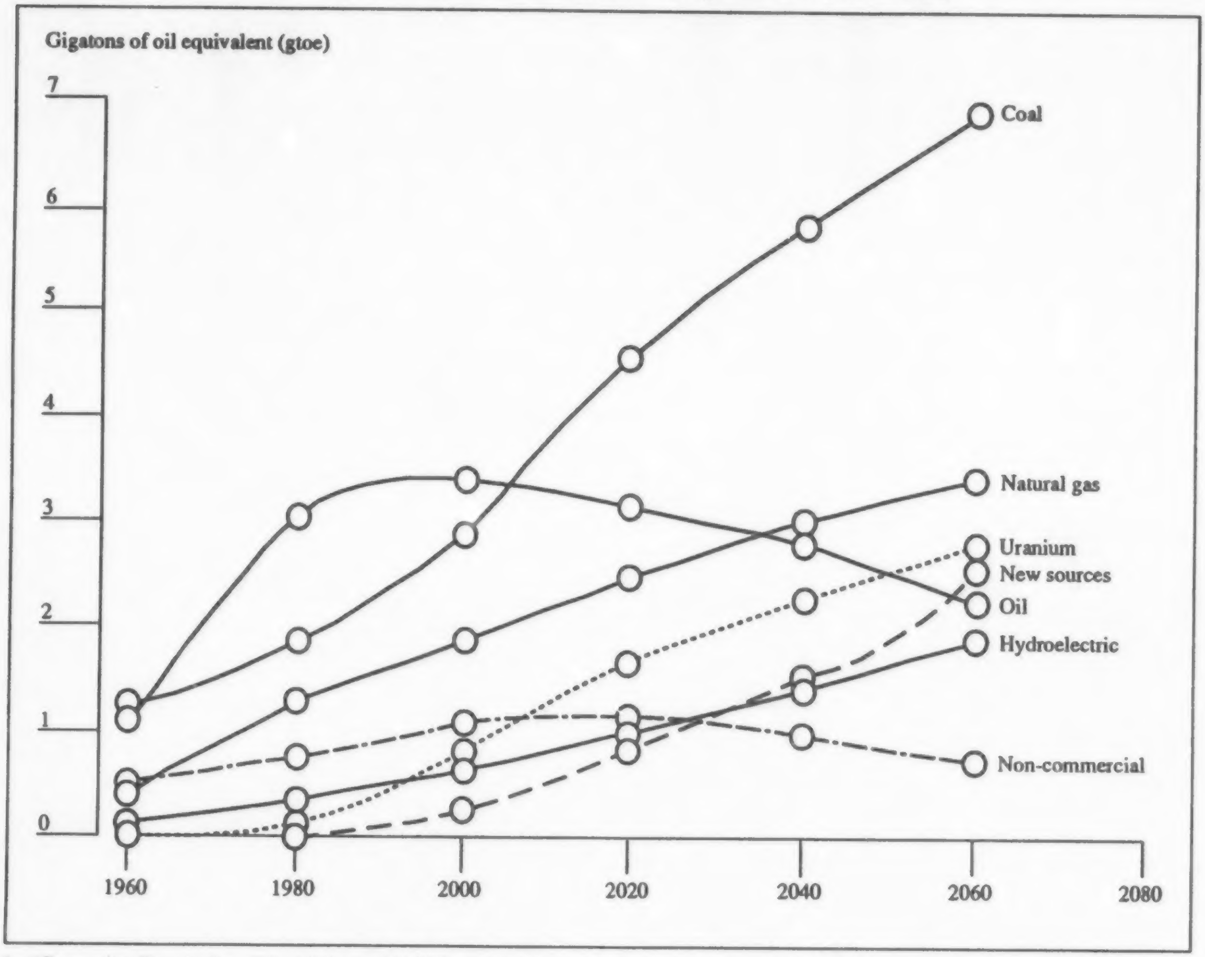
Materials

Over the past 100 years, the human use of both basic and exotic materials has increased dramatically. World iron production, for example, has grown thirtyfold. Annual copper production has grown at 4.5 per cent per year over the last century; lead, at about 3.5 per cent [*Mining Annual Review*, 1985]. The use of basic chemical stocks exhibits even faster growth. European consumption of sulphuric acid increased by a factor of 40 over the last century. Since 1950, consumption of benzene has grown at 5 per cent per year, and of organic pesticides at 18 per cent per year [U.S. Council on Environmental Quality, 1981]. The variety of materials in use has also experienced explosive growth. Something in the order of 70,000 different synthetic chemicals are now known, with 10,000 produced in commercial quantities [U. S. National Research Council, 1979].

New technologies involving composites, ceramics, and other exotic materials are rapidly developing. Clearly, continuing demand for extraordinary quantities of a great variety of materials will play a significant role in setting the physical stage for the 21st century. However, the long-term trend of increasing materials use with increasing levels of development and income has been reversed across a broad range of countries and sectors. Overall, the amount of industrial raw material needed per unit of industrial production is now less than half of what it was in 1900.[7] The basic pattern of declining intensity of materials use is illustrated for global cement use in Chart 1-5 [Phillips, 1987], and for a variety of other products in the European data of

Chart 1-3

Evolution of World Energy Supplies under the "Conventional" Projection "C",[1] 1960-2080



[1] "Conventional" projection "C" made by the World Energy Conference's Conservation Commission in 1986.

SOURCE C. Starr, "Implications of continuing electrification," paper presented at a symposium on "An energy agenda for the 1990s," National Academy of Engineering, Irvine, California, May 1988.

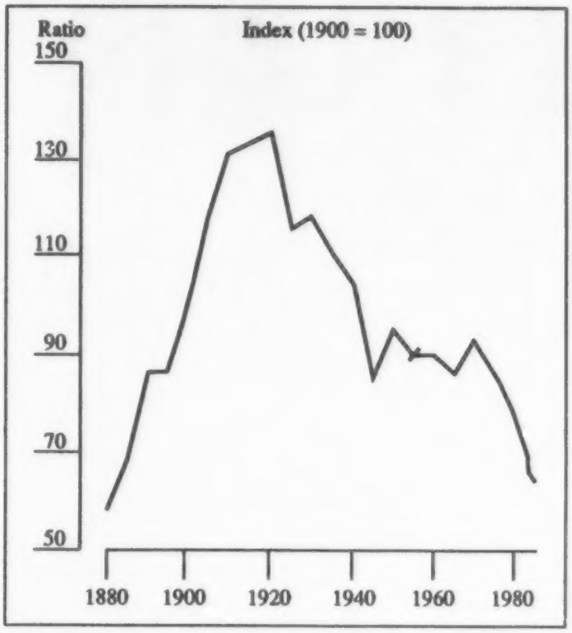
Chart 1-6 [Ross, et al., 1988]. The extent to which this "dematerialization" phenomenon is determined by income level (as suggested in Chart 1-5) or technical progress with time (as suggested in Chart 1-6) is difficult to unravel, since the two factors are so closely intertwined. In any case, however, the implications for materials use in the 21st century are profound.

Military

Military aspects of technology play a central and incompletely understood role in setting the global stage. The basic facts of the matter are straightforward, if depressing. World military expenditures have risen at an average real rate of about 4 per cent per year since 1949, a trend that shows no signs of abating (Chart 1-7 [Stockholm International Peace Institute, 1981]). Today, military expenditures consume something in the order of 4 per cent of gross world production. Over the past decade, more than $4 billion has been consumed by the military sector around the world. Whether these expenditures have bought the world increased security is a matter of debate, but they have certainly increased humanity's potential for self-destruction. Only a little over a century ago, the bitter and prolonged conflict of the

Chart 1-4

Long-Term Trends in Intensity of Energy Use,[1] United States, 1880-1985



1 Measured as the ratio of total energy use to GNP.

SOURCE C. Starr, "Implications of continuing electrification."

American Civil War left 600,000 dead. The improved technologies of World War I killed about 16 million people; World War II, around 20 million [Richardson, 1960]. No one knows quite what would happen if a third world war utilized even a modest fraction of the weaponry that has been built up in recent decades. But between direct blast and fire effects of modern nuclear weapons, and the environmental changes they would likely precipitate, the military technologies of today could easily kill 1 billion people [Bergstron, et al., 1983].

A second dimension of military technologies is less obvious but also important. A sizable fraction of total technical resources of the world have always been devoted to weapons systems. Today, a wide range of countries spend one fifth to one third of all R&D on military technology [U.S. National Science Foundation, 1988]. This activity certainly has had and will continue to have important civilian spin-offs – advanced computers and semiconductor chips and electromechanical devices for automatic control are obvious examples of current interest [Ramo, 1988, pp. 12-22]. But it is also true that military R&D may compete with civilian activities for both people and funds. Finally, the actual and potential restrictive impact of security concerns on world technology flows should not be underestimated. Better understanding of the relations between military and other technologies is needed if we are to improve our management of global change in the 21st century.[8]

Environment

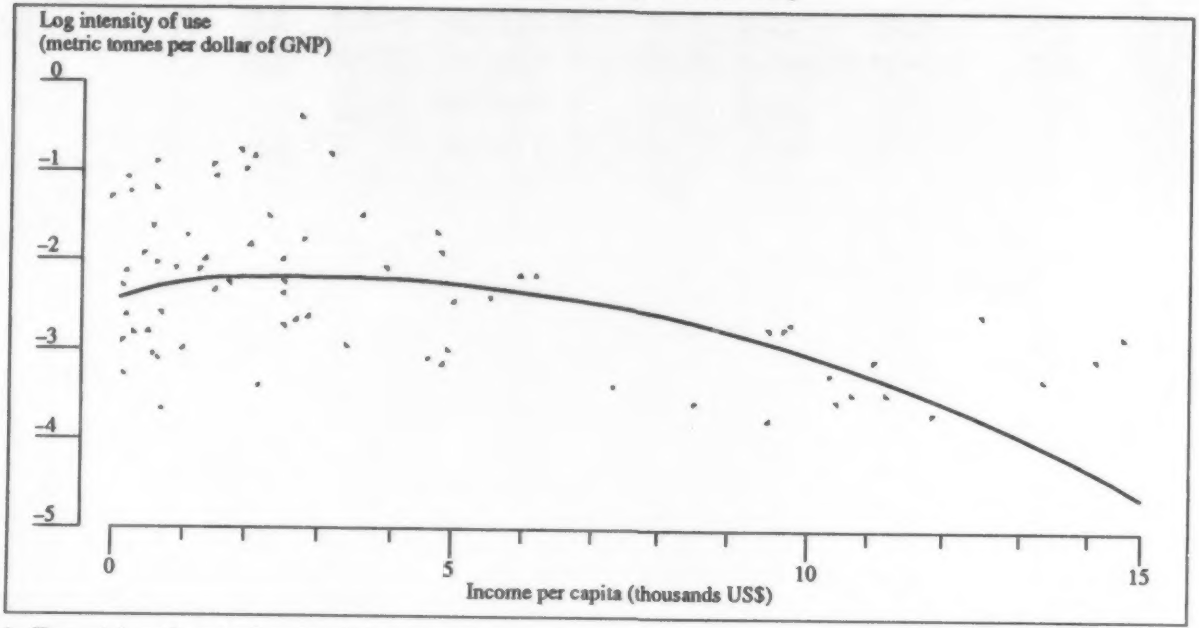
As noted in the first section, the long-term trend of interactions between populations, their technologies, and the environment is one of increasing scale, complexity, and intensity. A century ago, at the beginning of "The Great Climacteric" described by Kates and Burton, only certain regional environments had been significantly transformed by human activities. Today, there is not a place on the earth's surface where the impact of human technologies cannot be seen in changes of the physical, chemical, or biotic environments. Human activities of the 21st century have the potential to dominate many of the global biogeochemical cycles, to warm the world's climate at unprecedented rates, and to eliminate a significant fraction of the earth's biodiversity. A sampler of a few of the more important global environmental changes follows, starting with those having relatively straightforward causes and moving to the complex "syndromes" of environmental degradation noted in the first section. Due to constraints of space, I focus here on atmospheric changes and ignore the equally important issues of water pollution, deforestation, desertification, and the like.

Climate Change[9]

The earth's climate is strongly influenced by the atmospheric concentrations of certain "greenhouse" gases, among the most important of which are water vapour, carbon dioxide, methane, nitrous oxide, and some chlorofluorocarbons. Though the concentrations of some of these gases are significantly affected by natural fluctuations, human use of agricultural, energy, and industrial technologies has resulted over the past century in rapid increases of the total "greenhouse effect" in the atmosphere. These have been accompanied by, and may have caused, increases in global temperature of about 0.5°C and in global sea level of about 12 cm. A continuation of greenhouse gas emissions could result in significant, though highly uncertain, intensification of these impacts on global climate in the next century (Chart 1-8). Regional impacts would vary greatly and are even more difficult to predict. Under the forecasts summarized in Table 1-3, human impacts on the Indian subcontinent might well be dominated by increased coastal flooding in the Gangetic delta and plain, and by changes in the timing and intensity of monsoon rains. Primary impacts for Europe, in contrast, could occur through rapid northern migration of

Chart 1-5

Patterns in Intensity of Cement Use,[1] Various Countries of the World, Today



[1] The trend shows decreasing intensity with increasing wealth.

SOURCE W.G.B. Phillips, "Factors affecting the long-term availability of bulk materials," in *Resources and World Development*, eds., Digby J. McLaren and B. J. Skinner, Dahlem Workshop Report, *Physical, Chemical and Earth Sciences*, no. 6 (Chichester: Wiley, 1987), pp. 327-45.

climatic optima for crops and natural vegetation – a potentially serious problem in a region where habitats are as fragmented as they have become in Europe today. An increase in summer dryness would also aggravate existing problems of water availability for many countries of the Mediterranean basin [Brouwer and Falkenmark, 1988].

Ozone Depletion in the Stratosphere[10]

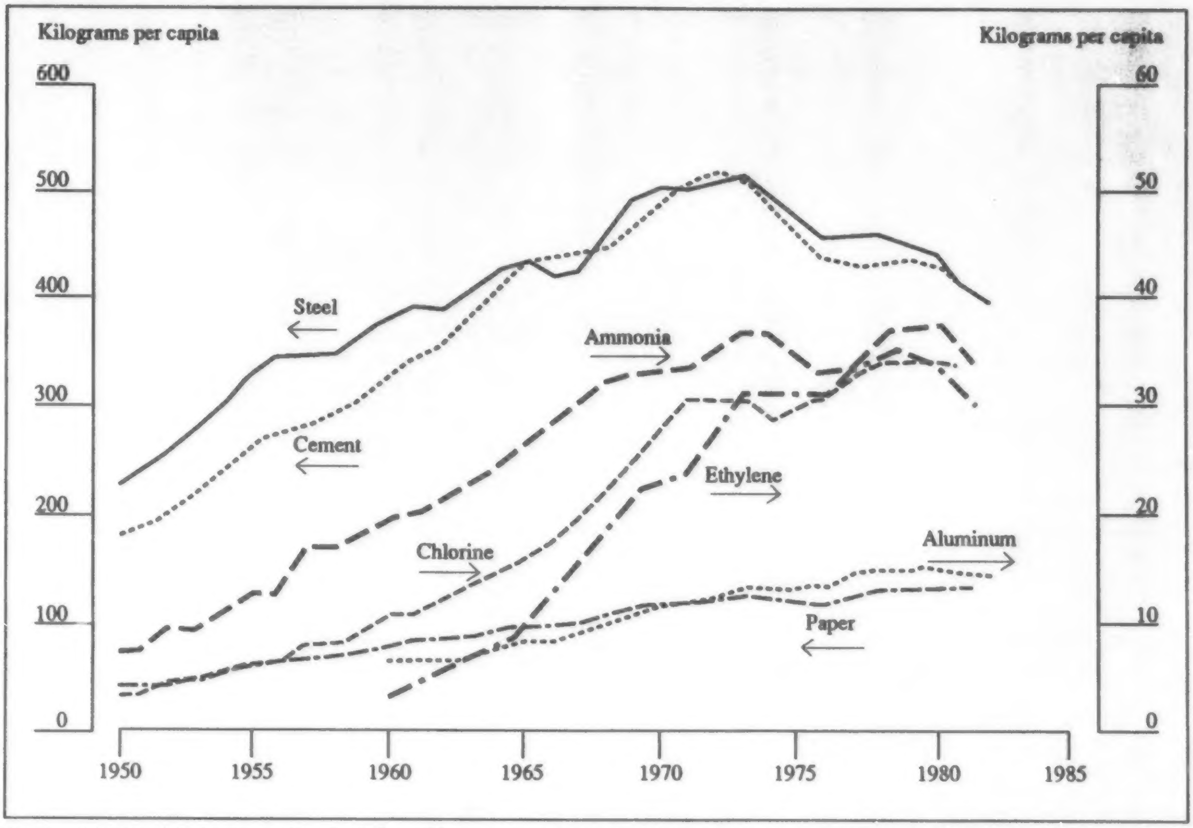
Ozone in the stratosphere plays an important role in the physics of the atmosphere and provides an important shield against solar ultraviolet radiation. With less ozone, more of the ultraviolet radiation would reach the earth's surface where it can cause significant harm to materials, plants, and people. The stratospheric ozone concentration is controlled through complex physical and chemical processes involving a number of gases – among them, chlorofluorocarbons, halons, methane, nitrous oxide, and carbon dioxide – that are now being influenced by human activity. Measurement difficulties have plagued efforts to assess possible ozone depletion. It now seems, however, that for the period of 1969-86, global ozone depletion may have been in the order of 2 to 3 per cent.[11] At the regional scale, a spectacular and unexpected decrease of 50 per cent in total column ozone has occurred over the Antarctic in the last decade. Looking into the future, simple models forecast a wide range of possible additional declines in global ozone values by the middle of the next century. The median estimate of about 5 per cent would be only slightly altered by full implementation of the present Montreal Protocol on Protection of the Ozone Layer (Chart 1-9 [Hammitt, et al., 1987]). Depletion would be greatest at high latitudes, with the total loss over the Indian subcontinent perhaps half that over Europe [Stordal and Isaksen, 1986].

Air Pollution and Forest Damage

Of the many large-scale environmental changes of recent years, none is so visually dramatic as the syndrome of extensive forest damage now evident in North America, Europe, and China. The causes of the damage are complex and poorly understood.[12] Most studies, however, agree that some combination of atmospheric pollutants is involved. Most often named are tropospheric ozone, acid deposition,

Chart 1-6

Long-Term Trends in Intensity of Material Use, Western Europe, 1950-85



SOURCE M. Ross, E. D. Larson, and R. H. Williams, "Energy demand and materials flow in the economy," *Energy, The International Journal*, 1988.

sulphur and nitrogen oxides, nitrate and ammonia, and heavy metals. Where the "Waldsterben" phenomenon is most advanced in central Europe, the volume of wood now showing signs of decline is more than five times the volume annually harvested. For many of the most severely affected countries and species, the ratio is greater than 10 (see map on page 22 [Nilsson and Duinker, 1987]). In other words, vastly more of Europe's forest is now at risk to air pollutants than to direct harvest by man. This situation will almost certainly deteriorate further by the middle of the next century, although present agreements to reduce sulphur emissions by 30 per cent will help, and stronger measures being contemplated would help even more (Chart 1-10 [Alcamo, et al., 1987]).

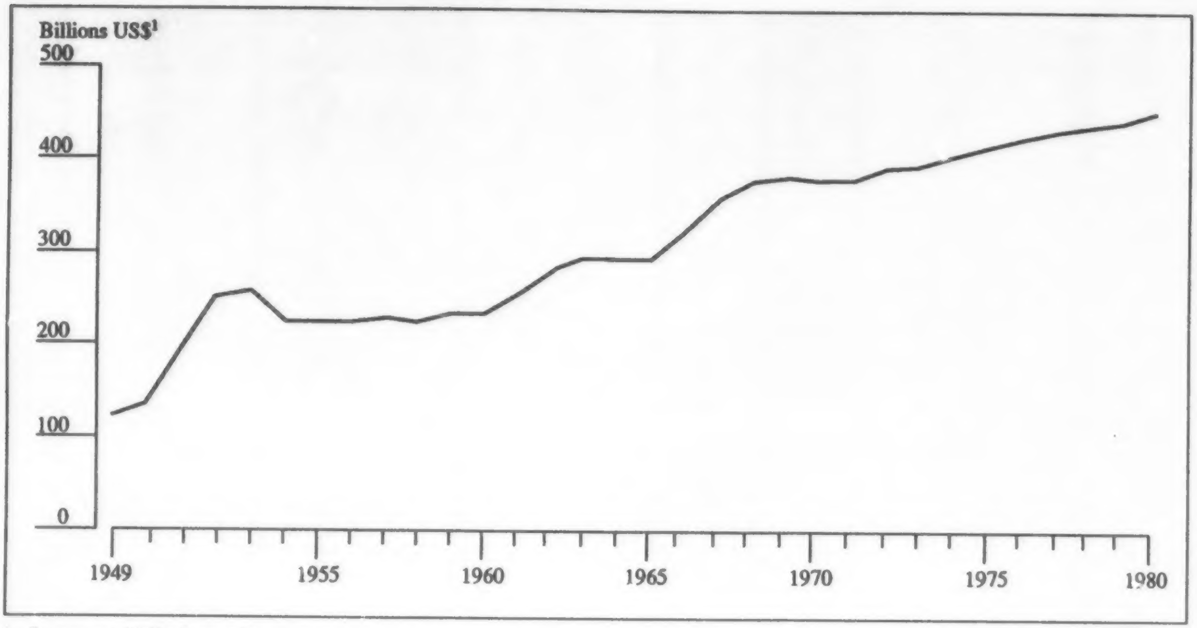
Though the character and probably the causation of forest damage differ among regions, there is every reason to expect that the current situation in Europe, with its uniquely long and intense history of industrial air pollution, provides the best available forecasting model of possible future developments elsewhere. Further development of existing damage can be expected in eastern North America and southern China. Potential problem areas for the future, identified on the basis of soil sensitivity and expected future industrial activity, include South America's Caribbean coast and the South Atlantic coast from Buenos Aires to Rio de Janeiro, Africa's Gulf of Guinea coast, India's west coast, and the Malaysian archipelago [Rodhe and Herrera, 1988].

Syndromes of Environmental Degradation

One of the most difficult tasks we must face in managing the interactions among human activities and the environment is to comprehend the connections among changes. Fossil fuel combustion, for example, has an impact on each

Chart 1-7

Trends in Total World Military Expenditures, 1949-80



1 In constant 1978 prices and exchange rates.
SOURCE Stockholm International Peace Institute, *World Armaments and Disarmament Yearbook: 1981* (London: Taylor and Francis, Ltd., 1981).

of the environmental components treated above – yet we persist in assessing the impacts of alternative energy policies one at a time. Conversely, many human and natural processes influence each property of the environment – yet we frequently conduct assessments process by process. One interesting experiment in picturing the missing connections is presented in Chart 1-11. These figures summarize a massive multidisciplinary study of long-term impacts of world development on the atmosphere [Darmstadter, et al., 1987].

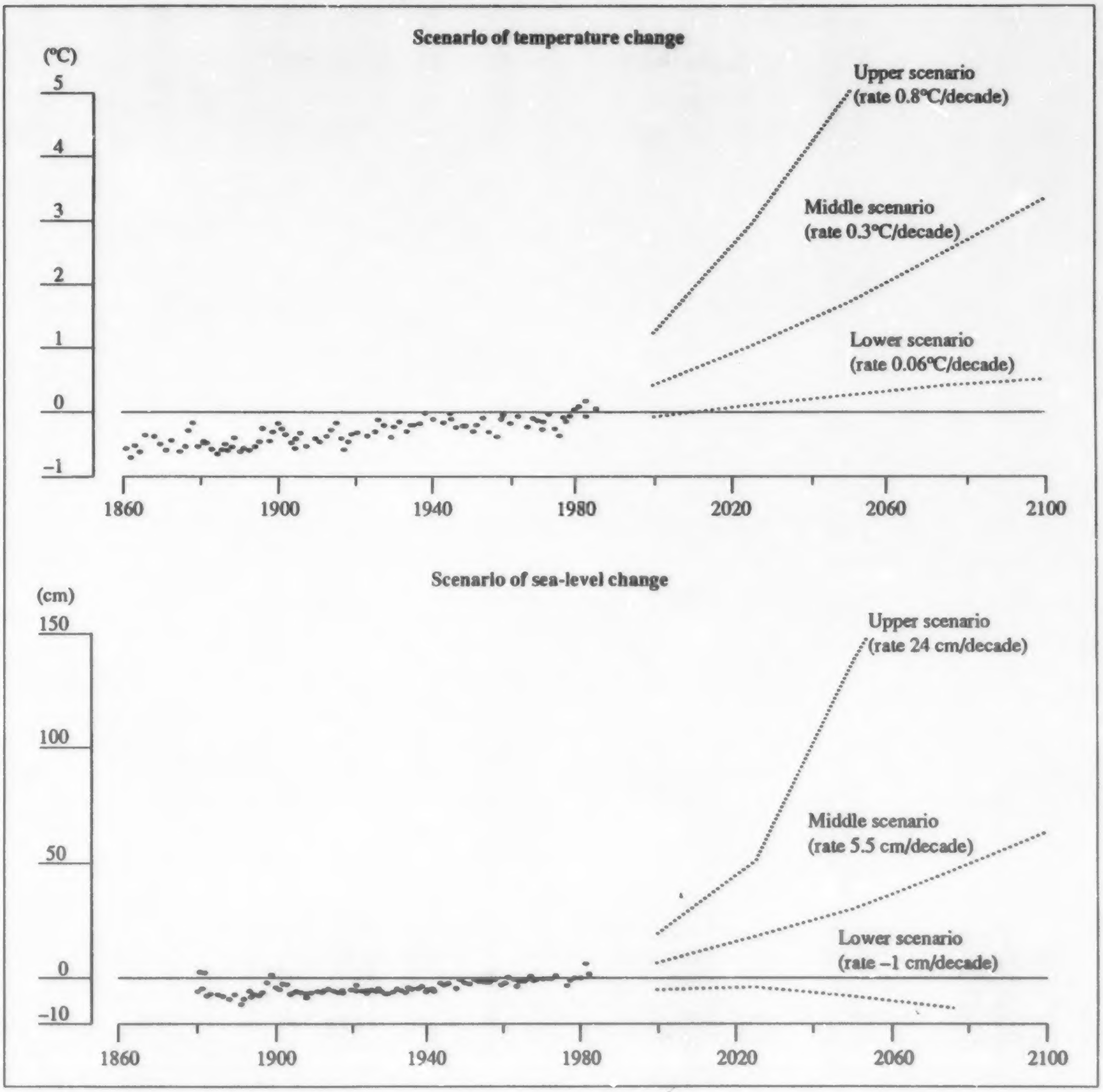
Each cell in the charts represents the impact of a particular natural or human source of change on a particular environmental component for a given period and region. Data for past periods are derived from historical studies, while those for the future are based on standard forecasts such as those presented above. Knowledge about the effects of various levels of impact is used in shading the results on a qualitative severity scale.The sum across each row gives the "total (environmental) impact" of a given source. The sum of each column gives the "environmental quality assessment" for a given component. Row and column totals combine in the lower right-hand corner to give a history of changes in overall environmental quality for the region in question. In this example, Europe shows a long history of increasing impacts, slowed but never reversed by technological improvements in pollution control. India begins to experience environmental problems later; but their rate of onset is faster and the overall environmental situation by the end of the 21st century is as bad as Europe's. Many details of the study underlying these figures could be debated; and the importance of subjective value assumptions in performing the "summations" is clear. Nonetheless, some sort of synoptic effort in the directions suggested here will be necessary if we are to come to terms with the next century's tightly linked syndromes of environment – development interactions.

Alternative Visions of the 21st Century: The Role of Surprise

The forecasts summarized in the previous section represent a cross section of the "conventional wisdom" currently advanced by prestigious national and international organizations concerning likely future changes in human populations, their technologies, and the natural

Chart 1-8

The Greenhouse Effect: Scenarios of Temperature and Sea-Level Changes, 1860-2100



NOTE The chart shows scenarios of changes in globally averaged temperature (above) and sea-level changes (below) that might develop in response to continued emissions of atmospheric greenhouse gases. The values are plotted as differences from the 1985 values. The middle curve of each panel reflects a scenario of continued present trends of emissions, including the implementation of the Montreal Protocol on Protection of the Ozone Layer on chlorofluorocarbons. There is a 5/10 chance that the actual path of climate change could lie below the middle curve. The upper curve of each panel reflects a scenario of accelerated greenhouse gas emissions and a relatively high climate sensitivity as predicted by some models. The lower curve of each panel reflects a scenario of radically curtailed emissions and a relatively low climate sensitivity. There is a 9/10 chance that the actual future pattern of greenhouse gas induced climate change will fall inside the bounds of these scenarios.

SOURCE Observed temperature data were provided by P. D. Jones; observed seal-level data, by V. Gornitz. The scenarios are taken from J. Jäger, *Developing Policies for Responding to Climatic Change*, summary of discussions and recommendations of workshops held in Villach and Bellagio, 1987, WCIP-1; WMO/TD, no. 225 (Geneva: World Meteorological Organization and United Nations Environment Program, 1988).

Table 1-3

Regional Scenarios for Climate Change[1]

	Temperature change[2] (as a multiple of global average)		Precipitation change[3]
	Summer	Winter	
Regions:[4]			
High latitudes (60-90°)	0.5x to 0.7x	2.0x to 2.4x	Enhanced in winter
Mid-latitudes (30-60°)	0.8x to 1.0x	1.2x to 1.4x	Possibly reduced in summer
Low latitudes (0-30°)	0.9x to 0.7x	0.9x to 0.7x	Enhanced in zones of heavy rain now

1 From J. Jäger, *Developing Policies for Responding to Climatic Change*.

2 Regional temperature changes are presented here as multiples of the globally and annually averaged temperature changes shown in Chart 1-8. Thus, for example, if from Chart 1-8 one assumes that the globally averaged annual temperature change for the year 2040 could be 2.0°C, then the table entry says that high latitude winter temperatures in the same year might have risen by a multiple of 2.0 to 2.4, to temperatures between 4.0° and 4.8°C. Similarly, a rate of change in the global mean temperature of 0.3°C/decade from Chart 1-8 would translate via this table to a rate of change in high latitude winter temperatures of 0.5° to 0.7°C/decade. The temperature figures cited in this table are taken from two general circulation models of the earth's atmosphere, selected to reflect the range of results being obtained from today's most advanced scientific studies. In particular, for each range of temperature multiples given in the table, the first value is drawn from J. Hansen, et al., "Climatic sensitivity: Analysis of feedback mechanisms," in *Climate Processes and Climate Sensitivity*, eds., J. Hansen and T. Takahashi, American Geophysical Union, Washington, D.C., 1984. The second value in each range comes from the work of S. Manabe and R. J. Stouffer, "Sensitivity of a global climate model to an increase of $C0_2$ concentration in the atmosphere," *Journal of Geophysical Research* 85 (1980):5529-54.

3 Precipitation is among the most difficult properties of climate to model or predict. The qualitative assessments quoted here are nonetheless supported by a number of studies. In particular, they are drawn from J. Mitchell, et al., "On $C0_2$ climate sensitivity and model dependence of results," *Quarterly Journal of the Royal Meteorological Society* 113 (1987):293-322.

4 The figures in this table are taken from computer modelling results for the Northern Hemisphere. Low latitude trends are likely to be similar for the Southern Hemisphere. The mid-latitudes of the Southern Hemisphere may differ due to the smaller landmass. The high latitudes of the Southern Hemisphere could respond much differently from Arctic areas because of the high altitude and land-based nature of the Antarctic.

environment. They explicitly presume an absence of global scale wars or economic depression over the next century, and more generally are free of radical departures from historical trends. But as noted earlier, significant changes often occur in abrupt or discontinuous bursts. And, as the Canadian biologist C. S. Holling [1985] has argued, if there is no framework of expectation or understanding, then these abrupt changes are perceived as surprises – as catastrophes, crises, or opportunities.

Surprise-free forecasts are therefore necessary but insufficient tools for efforts to improve the management of long-term interactions between humans and their environment. The problem in providing alternatives is not that analysts have been unaware of the shortcomings of surprise-free thinking, but rather that they lack, in the words of Harvard's Harvey Brooks [1986, p. 326]:

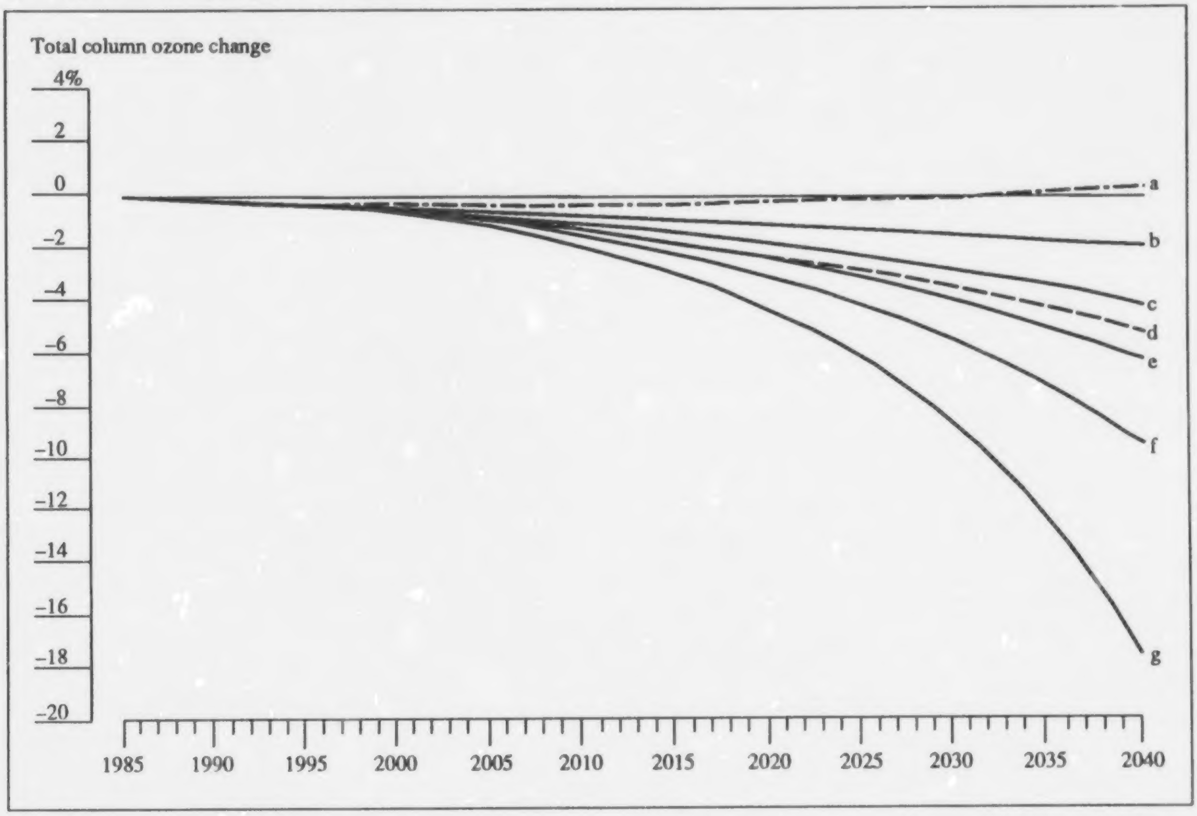
> . . . usable methodologies to deal with discontinuities and random events. The multiplicity of conceivable surprises is so large and heterogeneous that the analyst despairs of deciding where to begin, and instead proceeds in the hope that in the longer sweep of history surprises and discontinuities will average out, leaving smoother long-term trends that can . . . provide a basis for reasonable approximations of the future.

But real history turns out to be far from an "averaging out." The distinguished historian W. H. McNeill [1978] concluded his remarks at a symposium on *Resources for an Uncertain Future* as follows:

> I believe historians' preoccupation with catastrophe might be useful to economists, if they care to listen. Extreme cases, breakdowns, abrupt interruptions of established market relations – these are not staples of economic theory, and are, I believe, usually dismissed by statistically minded analysts of

Chart 1-9

Stratospheric Ozone Depletion, 1985-2040



NOTE Scenarios for average global change in total column ozone under a range of emission scenarios for gases with a potential for ozone depletion. The middle scenario "d" is analogous to the middle scenario of Chart 1-8; i.e., it assumes current trends of all emissions, plus implementation of the Montreal Protocol on Protection of the Ozone Layer. There is a 9/10 chance that the actual depletion will lie outside the envelope set by the outer scenarios "a" and "g."

SOURCE J. K. Hammitt, et al., "Future emission scenarios for chemicals that may deplete stratospheric ozone," *Nature* 330 (1987):711-16.

> the norm and its fluctuations. But human societies are a species of equilibrium, and equilibria are liable to catastrophe when, under special limiting conditions, small inputs may produce very large, often unforeseen, and frequently irreversible outputs . . . As an historian contemplating the richly catastrophic career of humanity across the centuries, I venture to recommend to economists a more attentive consideration of [catastrophe] models – at least when trying to contemplate the deeper past and long-range future.

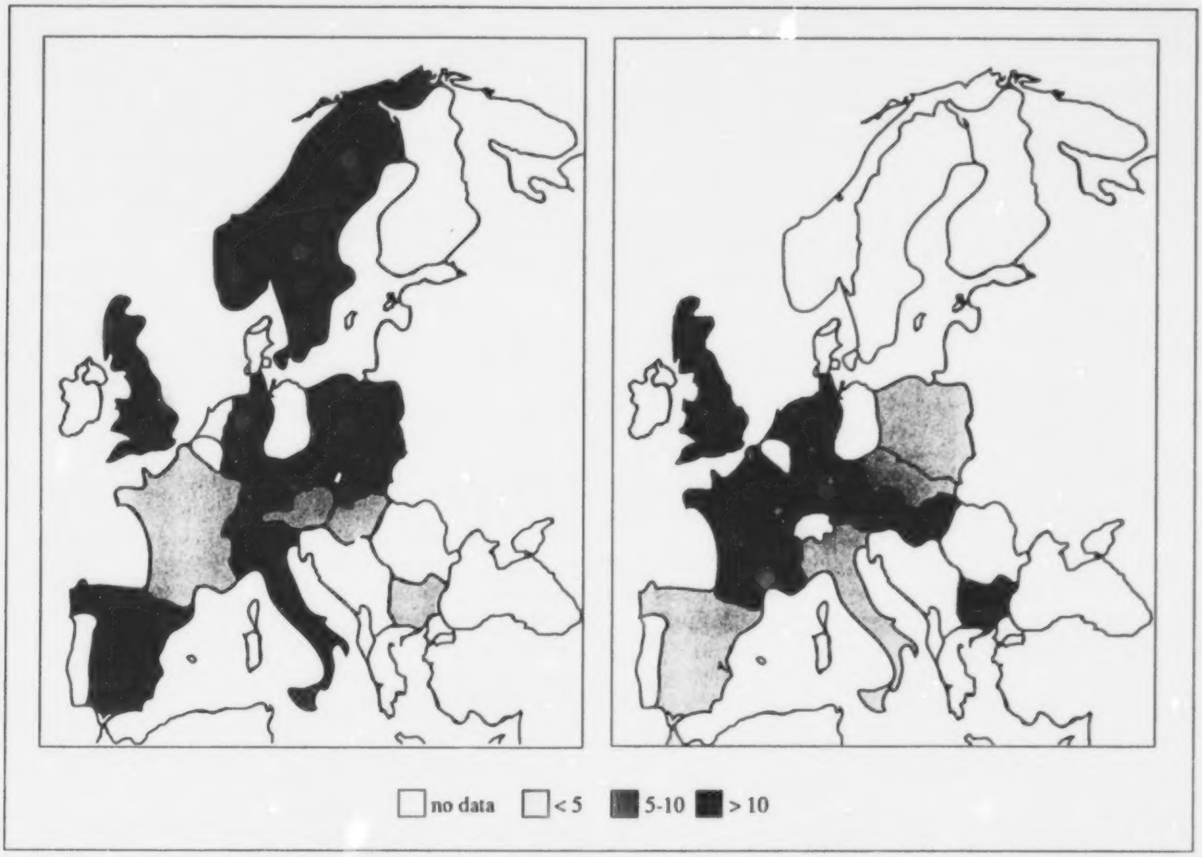
A central challenge for management as we approach the 21st century is therefore to develop methods, models, and concepts necessary to move beyond surprise-free analyses to a more realistic treatment of the complex interactions among people, technologies, and environments.

Approaches to the Study of Surprise

The "catastrophe" theories and their relatives referred to by McNeill have played an important role in providing an alternative paradigm to surprise-free analysis. But to move beyond the empty generalities and vague analogies which have so inflated the "catastrophe" literature, it will be necessary to assemble a great deal of carefully documented case material, to fashion a family of specific techniques and explanatory models, and to develop a basic theory of surprise.

As an example of what can be done on the empirical side, Brooks [1986, pp. 325-48] has devised a "typology of

Forest Damage in Europe, Mid-1980s



NOTE The map on the left side depicts coniferous forests in moderate, severe, and dead damage classes. The map on the right side depicts deciduous forests in slight, moderate, severe, and dead damage classes. These maps show national-level data for ratio of volume of damaged forest to volume of forest harvested annually. Thus, in the middle category plotted, five to 10 times more trees are now showing signs of damage than are cut each year.

SOURCE S. Nilsson and P. Duinker, "The extent of forest decline in Europe: A synthesis of survey results," *Environment* 29, no. 9 (1987):4-9 and 30-31.

surprises in technology, institutions, and development." He characterizes the kinds of surprise that arise in sociotechnical systems as follows:

- Unexpected discrete events, such as the oil shocks of 1973 and 1979, the Three Mile Island reactor accident, political coups or revolutions, major natural catastrophes, and accidental wars.

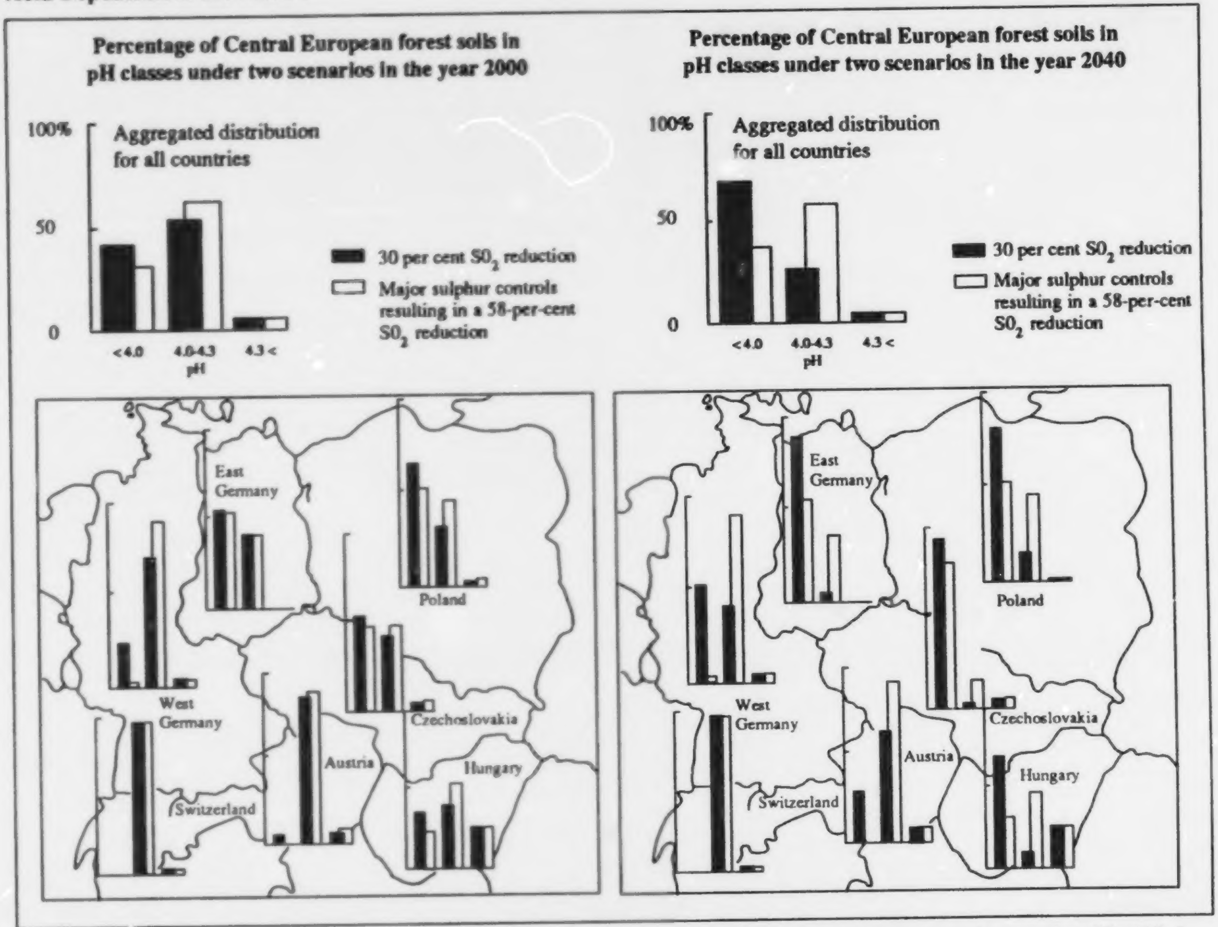
- Discontinuities in long-term trends, such as the acceleration of USA oil imports between 1966 and 1973, the onset of the stagflation phenomenon in the OECD countries in the 1970s, and the decline in the ratio of energy consumption growth to GNP growth in the OECD countries after 1973.

- The sudden emergence into political consciousness of new information, such as the relation between fluorocarbon production and stratospheric ozone, the deterioration of central European forests apparently due to air pollution, the discovery of recombinant DNA technique, and the discovery of asbestos-related cancer of industrial workers.

Brooks has collected a large number of examples under each of these categories, and has taken some initial steps in shaping a theory that accounts for their major features. More generally, Hagerstrand and Kates [1986] have catalogued the following possible techniques for constructing surprise-rich scenarios of future change:

Chart 1-10

Acid Deposition in the Future



Percentage of Central European forest soils in pH classes under two scenarios in the year 2000

Percentage of Central European forest soils in pH classes under two scenarios in the year 2040

NOTE This chart shows national level statistics for percentage of forest soils in various pH classes expected under alternative scenarios of fossil fuel use.

SOURCE J. Alcamo, et al., "Acidification in Europe: A simulation model for evaluating control strategies," *Ambio* 16 (1987):232-45, as reproduced in L. Hordijk, "Linking science and policy: A model approach to acid rain," *Environment* 30, no. 2 (1988):16-20 and 40-42.

1 Contrariness: How can the surprise-free assumptions be changed?

2 Perceived expert surprise: What are the tails of the distributions of relevant tasks, events, and outcomes?

3 Imaging: Given an unlikely future, what sequence of events might be used to reach it?

4 System dynamics: How could known current trends produce counterintuitive results due to interaction?

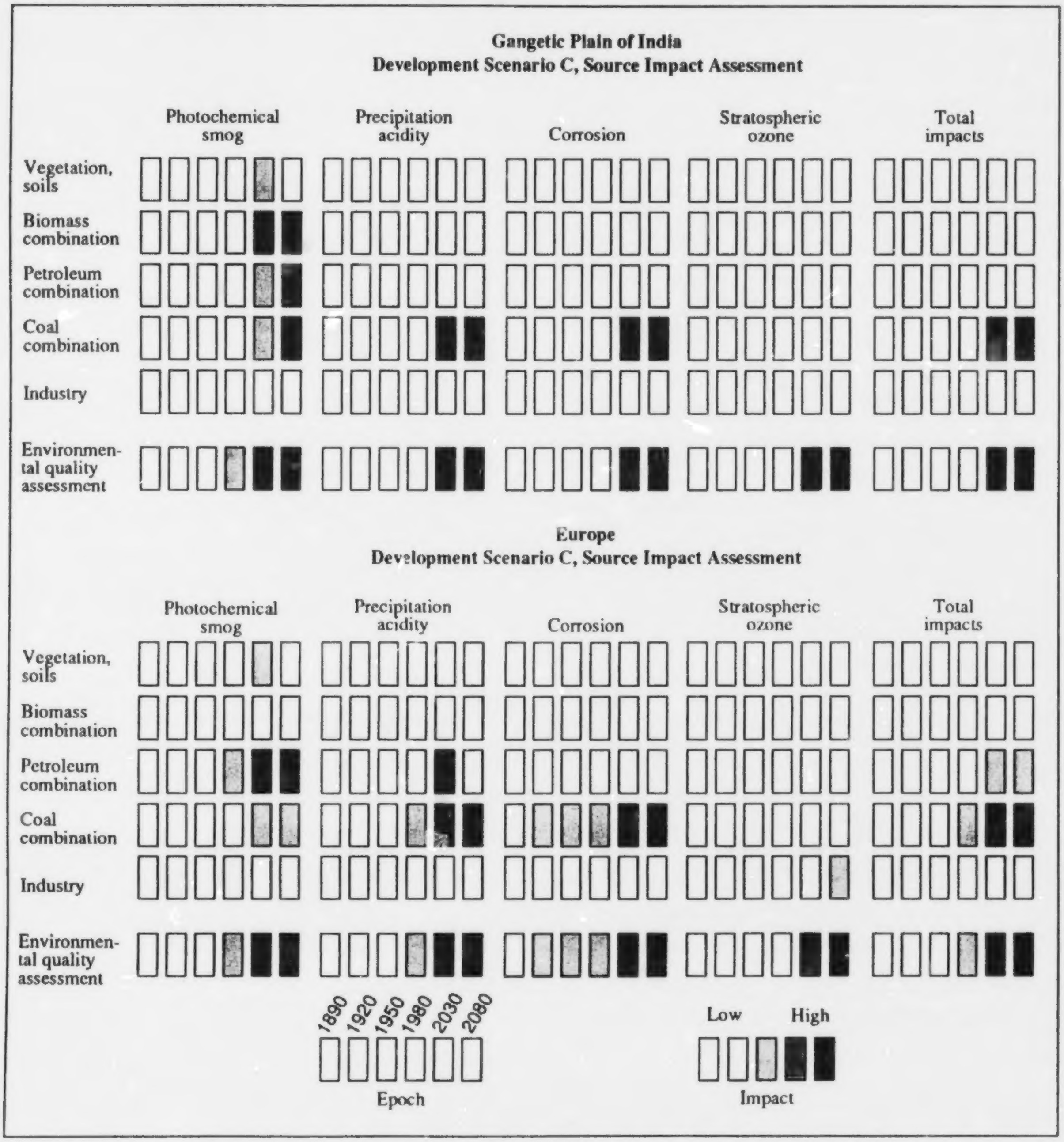
5 Surprise theory: Are there underlying principles that would let us understand unexpected events and developments?

6 Historical retrodiction: Are the seeds of future surprises always present with hindsight, and how can they be recognized?

Summarized in the remainder of this section are the results of two preliminary and experimental efforts to get on with the task of building surprise-rich scenarios. The first employed a mix of the first three techniques outlined by Hagerstrand and Kates and concentrates on social change. The second adopted a systems dynamics approach (number 4 above) in exploring possible environmental surprises. The section concludes with some speculations on the

Chart 1-11

Synoptic Assessment of Long-Term Trends of Environmental Change in the Gangetic Plain of India and Europe, under a "Conventional Wisdom" Scenario of Continued Population Growth, Technical Change, and Pollutant Emissions, 1890-2080



SOURCE J. Darmstadter, et al., *Impacts of World Development on Selected Characteristics of the Atmosphere: An Integrative Approach* (Oak Ridge, Tenn.: Oak Ridge National Laboratory for Resources for the Future, 1987), 2 vols., ORNL/Sub/86-22033/1. Copies available from RFF.

prospects for a theory of surprise (number 5 above). The results obtained, it should go without saying, should be treated as points of departure for further thinking and analysis, not as predictions of what is likely to occur.

The Friibergh Surprises

As part of the continuing IIASA effort to explore and evaluate approaches for surprise-rich analysis of global futures, a workshop was held at Friibergh Manor in Sweden in 1986.[13] The workshop brought together historians, natural scientists, and social scientists from Europe, North America, and Africa. Its objective was to write a number of "future histories" of the next century that would differ significantly from the conventional visions described in the previous section. The basic methodology evaluated through the workshop was to review the conventional forecasts, then to postulate a set of states of the world in 2075 sufficiently different from the conventional wisdom as to be judged by workshop participants to be "surprising" or unlikely, and finally to attempt to construct plausible sequences of events connecting these surprising futures to the world of today. Participants endeavoured to make individual events in the sequences as plausible as possible – the intention was to discover the extent to which a surprising century could emerge as the cumulative product of a sequence of relatively unsurprising days and years. Independent working groups wrote their own "future histories" for each postulated state of the world in 2075. Results were then compared, critiqued, and a composite history constructed. The effort was global in perspective, but with particular attention paid to developments in Europe and the Indian subcontinent.

In the space available here, I can sketch only a summary of two of the Friibergh scenarios. Regrettably, these summaries omit the rich contextual narratives which give the originals an aura of both verisimilitude and playfulness – an example of the narrative versus numbers tension noted in the first section. It may be worth pointing out, however, that most of the normally sober and skeptical scholars involved in the Friibergh effort came away convinced by the process of building these scenarios that the future histories they constructed were surprisingly compelling in their internal momentum and logic. The implication is that even worlds as different from our present imaginings as those described below require little more than a persistent bias to events for their fulfilment. In other words, very surprising futures turned out to be surprisingly easy to shape. The meaning of this finding – confirmed by other work in scenario analysis and war gaming [Brewer, 1986, Chapter 17] – for efforts to think broadly about the 21st century is debatable, but probably important.

Friibergh 1 – "The Big Shift"

The leitmotif of the first scenario of global change developed at Friibergh is a shift of the centre of the world economy to South and East Asia. A number of factors contributed to a reversal of 20th century core-periphery relations. One was a "noble decline" of Europe and America, brought on through an increasing unwillingness of nations, ethnic groups, and individuals to look beyond short-term gains in material welfare and economic security. The resulting failure to develop the new social and economic structures that the 21st century demanded was reflected in the collapse of Europe's 1992 experiment, and the transient nature of the Gorbachev era in the Soviet Union. The cold war was not so much resolved as rendered irrelevant, fading into insignificance relative to the internal problems of the former superpowers.

In contrast, India, China, and their neighbours traverse the 21st century as increasingly dynamic and expansive societies, successful in resolving many of the problems that confront them. This was in part due to an advantageous international situation, but resulted largely from radical political actions and social innovations taken at the national and regional levels. A vigorous new social synthesis of the most successful approaches to the organization of work that had been developed in the 20th century, plus the region's traditional religious and community values emerged. This proved successful in guiding development, mobilizing the masses, and keeping social tensions within limits manageable by the authoritarian but pragmatic central governments of the region. Even the great calamity of the period – the loss of much of coastal Bangladesh to rising sea level – had the long-term effect of diminishing local power struggles and promoting integration of the region.

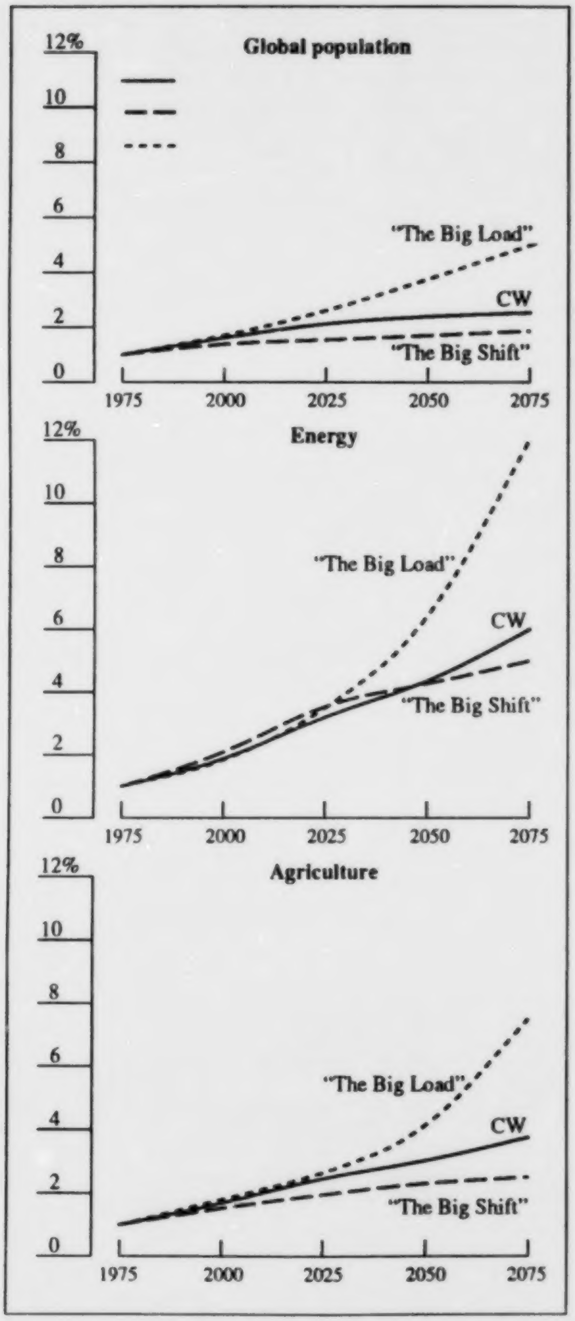
Some quantitative results of these developments are presented in Table 1-2 and Chart 1-12. By 2075, this world turned upside down had a population of about 8 billion people. Growth of population largely stabilized due to the radical improvements in personal well-being in South and East Asia. Global energy use and agricultural production also increased somewhat less than in the conventional wisdom forecasts of the late 20th century. By most meaningful measures, the gap between North and South declined dramatically.

Friibergh 2 – "The Big Load"

In this scenario, the declining rates of global population growth that so influenced forecasts of the late 20th century prove to be a transient and local anomaly. By 2075, there are 20 billion people alive on the planet. A variety of factors

Chart 1-12

The Friibergh Scenarios, 1975-2075



NOTE The chart plots factor increases in global population, energy use, and agricultural production associated with the two Friibergh surprises "The Big Load" and "The Big Shift" described in the text.

SOURCE S. Anderberg, "The Friibergh scenarios," in *Scenarios of Socioeconomic Development for Studies of Global Environmental Change: A Critical Review*, eds., F. Toth, et al. (Laxenburg, Austria: IIASA, 1988).

contributed to the failure of the 20th century's population control efforts, among them ethnic competition within nations and China's explicit reversal of its slow-growth policies. Most spectacular, however, was a backlash response – fanned by suspicions of intentional genocide – to the belated discovery that a male contraceptive distributed widely in the Third World during the early 21st century invoked permanent rather than temporary sterility in men working under extreme tropical conditions.

To the surprise of many, however, technological and economic growths were stimulated rather than swamped by the expanding population. Rapid progress – though incremental rather than revolutionary – in solar energy and bioengineering technologies was crucial. By the end of the century, most people were doing about as well as they were expected to under the conventional forecasts of a world only half as densely inhabited, that were prevalent 100 years before (see Table 1-2 and Chart 1-12).

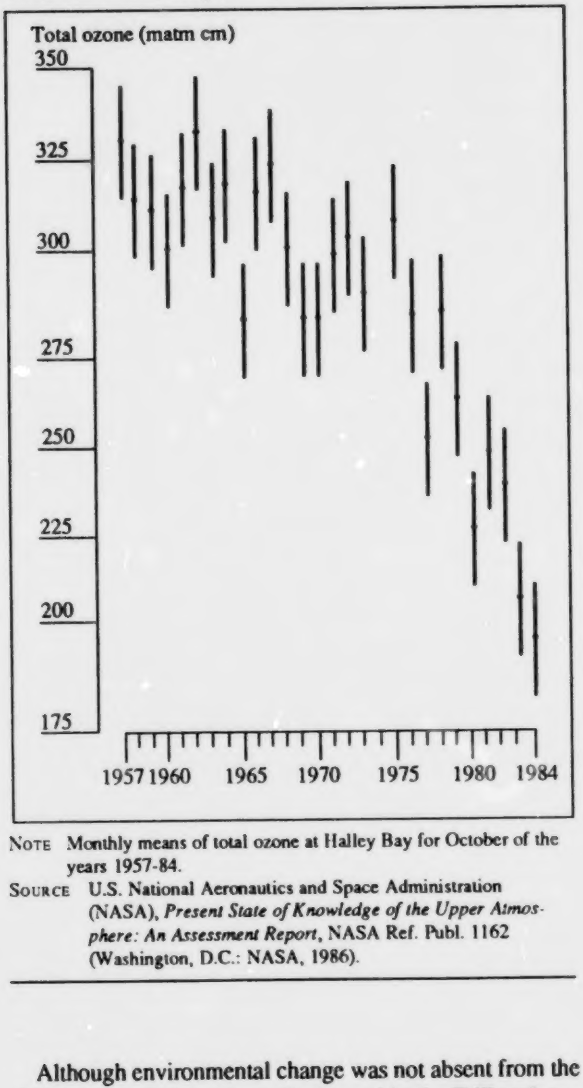
"The Big Load" imposed great stresses on environmental and social systems. But the world of the mid-21st century was nonetheless held together through a system granting high ethnic autonomy at the local level and a "new international order" of non-governmental institutions coordinating economic and environmental measures at the global level. Transnational religious and business organizations were central to this system, with nation states becoming increasingly preoccupied with symbolic and security functions. A great deal of migration took place in this crowded world, especially into sparsely settled areas such as Siberia, Amazonia and – after the elimination of the tsetse fly and a variety of water-borne diseases – much of central Africa. After a period of ineffective if draconian measures to regulate the flow of people, however, states also relegated this function to non-governmental mechanisms and the market.

The Laxenburg Surprises

The possibility of abrupt and unexpected environmental change on large scales is now taken seriously in the natural sciences, if for no other reason than the totally unexpected appearance over the last decade of the hole in the ozone layer above Antarctica (Chart 1-13), and the rapid onset of forest dieback in parts of Europe. The possibilities of catastrophic sea-level rises associated with a collapse of the West Antarctic ice sheet, and of rapid rearrangements of North Atlantic ocean circulation and climate have also received wide public attention. Nonetheless, no systematic study of not-impossible environmental surprises has yet been attempted.

Chart 1-13

Antarctic Ozone Depletion, 1957-84



NOTE Monthly means of total ozone at Halley Bay for October of the years 1957-84.

SOURCE U.S. National Aeronautics and Space Administration (NASA), *Present State of Knowledge of the Upper Atmosphere: An Assessment Report*, NASA Ref. Publ. 1162 (Washington, D.C.: NASA, 1986).

Although environmental change was not absent from the Friibergh scenarios, the methods used in the Friibergh experiments did not attempt to utilize any deep understanding of the possible sources of abrupt or discontinuous change in the natural environment. A second workshop was therefore held, this time at the IIASA in Laxenburg, Austria, to outline a set of not-impossible environmental surprises for the next century. Participants were drawn from ecology, oceanography, atmospheric chemistry, and climatology. Source material constituted both historical documentation of abrupt changes that had happened before and thus might recur, and understanding of causal processes that might, through interaction, produce unexpected results. As in the case of the Friibergh experiments, the objective was not to predict the likely, but rather to expand perceptions of the not impossible.[14]

Once again, space constraints for this essay allow me only to summarize a few of the Laxenburg results. Missing will be both the sense of adventure that permeated this communal effort to second-guess the unknown, and the detailed critical analyses that make these particular imaginings more than entertaining science fictions. Most important, however, I know of no way to convey the feeling of many participants that they were working on something that was simultaneously important for serious people to understand and indecent for serious scholars to study. The willingness of the group to move forward on the experiment despite that tension is encouraging.

Laxenburg 1 – Amazonian Fire Forests[15]

The central event of the first Laxenburg scenario was a series of catastrophic fires that occurred in the Amazonian basin in the mid-21st century, similar in character to, but vastly more extensive than, those that had ravaged Borneo in the 1980s. Surprisingly, however, the forest that grew back in the wake of these fires was not the humid rain forest of classical Amazonia, but an open woodland associated with annual dry periods and maintained by periodic fires. In subsequent years, this fire-maintained woodland encroached rapidly on the remaining rain forest, leaving only patchy remnants by century end.

In retrospect, it seems reasonably clear how the Amazonian collapse developed. No processes unknown to scientists of the late 20th century were involved; it was rather the unlikely but wholly plausible systems interaction of several processes that did the job. Since the late 20th century, it had been known that about half of the two or three metres of rain that falls in the Amazonian basin each year was recycled internally through the rapid evapotranspiration pathways provided by the forest. This internal recycling significantly mitigated the seasonality of water availability in the Amazonian system. Such a positive feedback loop between the amount of rainfall and the huge area of tropical vegetation it supported had long been recognized to pose a theoretical possibility of disruption with unpredictable consequences. The basic hypothesis was that some external processes could lead to a reduction in the water vapour available to the system. Total rainfall would then decrease, the buffering character of the forest would be adversely affected, and the seasonality of water availability would increase. These changes would feedback on themselves, producing an incrementally altered forest system, recycling incrementally less water, and increasing stress during the increasingly extreme periods of annual dryness. Eventually, a critical point would be reached at which any number of events might trigger an abrupt transition into a radically different system of vegetation, recycling much less of the region's water.

In the event, two human-induced processes set the stage for the collapse of Amazonia, one global, one regional. At the global scale, the slowly warming climate resulting from the greenhouse effect resulted in intensification of the overall hydrological cycle. But although more rain fell in Amazonia than at present, it fell less frequently and more intensely. This increased water stress on forests, especially in the dry season. Added to this globally induced stress were the regional effects of forest clearing and the resulting decrease in water-recycling capacity of the basin. With the stage set by this increasing stress on the positive feedback loops of Amazonia's hydrological system, it was only a matter of time until some event triggered catastrophic change. As had been the case in Borneo in the 1980s, that triggering event turned out to be a massive fire probably precipitated by the acute episodes of dryness that have for centuries been associated with the periodic "El Nino" or Southern Oscillation in ocean temperatures [Malingreau, et al., 1985]. These fires sufficiently disrupted the forest's ability to recycle water that the trees growing back in their aftermath faced significantly dryer conditions than their predecessors. As in many other regions of the world, this relatively dry forest, once established, was stable – supporting the periodic fires that assured its own regeneration.[16] This abrupt, catastrophic, and irreversible change of today's Amazonian rain forest into a much less diverse and productive Amazonian fire forest eventually resulted in the loss of a significant fraction of the Western Hemisphere's biodiversity and the conversion of a humid, highly productive ecosystem into an area of periodic drought and diminished carrying capacity.

Laxenburg 2 – Degradation of the Troposphere[17]

In the latter years of the 20th century, high concentrations of tropospheric ozone became chronic in industrialized urban areas, with occasional acute episodes over larger areas. In the early 21st century, these pockets of high concentrations exploded outward into a chronic, continent-scale phenomenon of ozone stress throughout much of the developed and developing world. By 2025, average background ozone concentrations in many rural areas were equivalent to the worst months experienced by the Ruhr Valley or Los Angeles in the 1980s. The complex syndrome of atmospheric degradation accompanying these changes accelerated through the remainder of the century, despite some marked successes in regulating individual pollutants. The cumulative damage to human health, crops, forests, and development in general exceeded anything seen in the 20th century.

Again, in retrospect, it was fairly clear how unexpected interactions among individually understood processes had combined to produce the rapid alteration of global tropospheric chemistry. The central actors in this transformation turned out to be methane, the oxides of nitrogen, and hydroxyl radicals. Hydroxyl radicals are extremely scarce but extremely effective "cleaners" that remove from the atmosphere a range of obnoxious chemicals including carbon monoxide, hydrocarbons, and some of the sulphur compounds involved in acid rain. Methane (CH_4) had been increasing at a rate of about 1 per cent per year through much of the 20th century. Conventional wisdom at the time ascribed this rise to growing cultivation of rice and ruminants and, to a lesser extent, to direct release from industrial coking and fossil fuel production operations (leakage from coal seams and gas transport plus gas flaring). In clean air, methane is oxidized to carbon dioxide, in the process consuming both ozone and the hydroxyl radical. In air polluted with high levels of nitrogen oxides, however, the oxidation of methane proceeds by a different path that releases both the hydroxyl radical and ozone to the atmosphere.

As we entered the 21st century, the atmospheric concentration of methane grew at an accelerating rate. In addition to the known sources mentioned earlier, this was due to the unexpected increase of methane releases from Canadian and Siberian tundra. (Those normally unproductive landscapes, it turned out, were being fertilized – and their methane production thus increased – by the long-range transport of nitrogen oxide compounds from the industrialized areas of the Northern Hemisphere.) In the relatively clean air of the equatorial regions and Southern Hemisphere, oxidation of the increased amounts of methane depleted the available hydroxyl radicals. This left the polluted northern latitudes, with their hydroxyl-producing chemistry, as the principal location of further methane oxidation. In the process, however, the high nitrogen oxide concentrations in those latitudes assured substantial net production of ozone over virtually all the inhabited land areas of the Northern Hemisphere. By the end of the first quarter of the century, the depression of hydroxyl concentrations in the low and southern latitudes, coupled with increased biomass burning and industrial activity in the same regions, allowed nitrogen oxides to accumulate there. These eventually reached the threshold concentration above which methane oxidation is a net producer of ozone; ozone concentrations therefore began to climb even in these relatively clean areas. The final contributor to this scenario was the further acceleration of methane releases from the northern latitudes that began about mid-century in response to climate warming. (Both increased tundra productivity and the release of previously frozen methane clathrates from the bottom of the Arctic Ocean contributed to this response.) This methane release initiated a positive feedback – warmer temperatures produced more methane which warmed the temperatures even more – which, as a byproduct, churned out even more ozone into the global troposphere.

Towards a General Understanding of Surprise?

Surprising futures of the sort summarized above could be spun out indefinitely. And although more such spinning would almost certainly provide useful counterpoint to the conventional wisdoms that so often blinker our perspectives on the future, a more systematic treatment of the nature and origins of abrupt change in complex systems, and of social reactions of surprise, is nonetheless badly needed.

In the beginnings of work towards such a theory of surprise, C. S. Holling [1986, pp. 292-317] has emphasized the critical importance of processes operating on multiple time scales. In particular, he argues that the abrupt change of one or more "fast" variables (for example, the fraction of water recirculated or the ozone levels in the "Laxenburg" scenarios described above) can often be understood as a consequence of specific alterations in the underlying system structure that result from continuous change of one or more "slow" variables (for example, the deforestation or the methane rises in the examples). Elsewhere, Holling [1973 and 1986] has summarized a large body of empirical work on the key features of environmental systems that exhibit abrupt change. I paraphrase his conclusions as follows:

1 There can be a number of locally stable equilibria and stability domains around these equilibria due to the existence of significant nonlinear processes in the system.

2 Abrupt jumps between the stability domains can be triggered by exogenous events. The size of these domains is a measure of the sensitivity to such events.

3 The stability domains themselves expand, contract, and disappear in response to changes in slow variables . . . and, quite independently of exogenous events, force the system to move between domains.

4 Different scales of variability emerge from the details of the system. There can be conditions of low equilibrium with little variability. And there can be dynamic disequilibrium in which there is no global equilibrium condition and the system moves in a catastrophic manner between stability domains. Finally, there exists the possibility of chaotic behaviour.

5 Abrupt change is thus an integral property of the system. For long periods change is gradual and abrupt behaviour is inhibited. Conditions are eventually reached, however, when an abrupt jump event becomes increasingly likely and ultimately inevitable.

The potential utility of Holling's approach for complex systems of interactions between people and environments can be illustrated by current debates over the impacts of climatic variability and change on society. Martin Parry [1986] has characterized the problem as follows:

> What, for example, were the real 'causes' of the Sahelian crisis . . . meteorological drought or enhanced vulnerability due to economic and political developments insensitive to an environment that has always been changeable?

He points a way to its resolution, however, with a distinction

> between contingently necessary and contingently sufficient conditions for an occurrence. It is probable that increased vulnerability was a necessary condition (or precondition) for the Sahelian disaster; without it the economic system might have been more resilient to the meteorological drought. It was not, however, a sufficient condition, because it required a further event . . . to precipitate the effect.

In the conceptual framework introduced by Holling, the "contingently necessary" economic and political developments would thus seem to play the stage-setting role of slow variables. Meteorological drought is one possible candidate for the exogenous triggering event. And the disaster of ensuing famine is the abrupt change that society, lacking an adequate framework of understanding, reacts to with surprise.

Whether this perspective on abrupt change can help to develop tools and understanding that will be useful in managing the interactions among populations, their technologies, and the environment remains to be seen. At a minimum, however, it focuses attention on the need to assess, much more systematically than has been the case, those "slow variable" processes that might be significantly involved in setting the stage for interactions of people and their environments. In the final section of this paper, I suggest how our nascent understanding of surprise might be utilized for improved management of the interactions among people, their technologies, and environments.

Practising the Future

This essay, along with its companions in the Perspective 2000 project, has attempted to sketch a broad range of not-impossible futures that humanity could find itself contending with in the 21st century. An indefinite number of additional visions is surely possible, each emphasizing a different set of actors, interactions, and uncertainties. The central challenge is not, however, comprehensively to describe or rank all such alternatives. Rather, it is to design management skills that will help us to deal with the wide range of contingencies they represent – skills that will help us in turning the future's unforeseen opportunities to our advantage, and in controlling its unforeseeable dangers within tolerable limits. Much calculation and analysis can doubtless aid in this task. But there is a limit to how much improvement can be expected from theoretical studies divorced from actual conditions of use. And no management tool or concept has value independent of the skills of its user – skills that can only be learned through long and continuing practice. If the visions suggested here are to evolve into something of practical value for societies, the societies must find ways of putting them to work. Only such exercises in application can produce a realistic feel of how various policies and management strategies might best be applied, what their actual strengths and limitations are, and where they can best be improved.[18]

What might such exercises look like? What skills would they try to develop? How would they provide opportunities to apply and test our incomplete understanding of the world's changing physical stage and possible policy responses to it?

The Need for Practice

Practising with Earth itself obviously has its drawbacks. Scientists may speak of the human releases of carbon dioxide to the atmosphere as "a great geophysical experiment," but the results of this particular experiment may come in a bit late to be of much use for those living in the test tube. The obvious alternative of practising on various mathematical models of the Earth also leaves much to be desired. Any notion of confidently predicting the practical consequences of alternative response options wilts under the numbing scale and complexity of today's interactions among people, their technologies, and the environment, plus the profound uncertainties that remain in our scientific understanding of those interactions. Moreover, even in simpler contexts, formal models have generally not been conducive to the close interaction among scientists, politicians, and other people that would be such an important aspect of the social learning that will be required to cope with global change in the 21st century.

More useful means of practising how to cope with complex interactions of environments and societies are badly needed. Considerable attention has been devoted to these needs over the last five years in an experimental program at the IIASA. Following an extensive review and evaluation of experience with alternative approaches [Brewer, 1986; Meadows and Robinson, 1985], the IIASA effort developed a program of "policy exercises": organized efforts that bring together policy people, scientists, and technologists to practise writing "future histories" of plausible interactions between societies' development activities and the global environment [Toth, 1987]. Trial efforts have been conducted on problems of long-term interactions between development and environment in Europe, and on the implications for the world forest products industry of pollution-induced dieback in Europe's forests. Further efforts are planned to deal with policies for managing climate change. Some of the tentative conclusions and perspectives from this work are summarized below.

Political Exercises and Gaming

Policy exercises are derived from approaches developed in support of political-military strategic planning during the late 1950s and early 1960s [Goldhamer and Speier, 1959, pp. 72-83]. At that time, experience had shown that formal models were inadequate to capture the contingencies, the unquantifiable factors, and the contextual richness that seemed central to the main lines of political evolution between the great powers in the period 1955-65. The models also tended to strengthen rather than relax the barrier between analysts and practitioners of political and military strategy. In attempting to design more useful integrative approaches, Herbert Goldhamer of the Rand Corporation realized that his

> problem was similar to that confronting historians. He was faced with the task of writing a 'future history' to clarify his ideas about the motives and influences affecting the behaviour of great powers, their leaders, and others in the real political world [Brewer and Shubik, 1979; Allen, 1987].

The method devised by Goldhamer and his colleagues to write these future histories was dubbed "political gaming." Teams of human (as opposed to computer) participants were confronted with generally realistic problem scenarios and required to work through responses both to the scenario and to the moves made by other teams. The role of "nature," which determines the impact on conditions of play resulting from the moves of the teams, the injection of unexpected events, the introduction of constraints on allowable responses, and so on, was played by the control team responsible for organizing the exercise.[19]

Garry Brewer [1986] has described four "difficult questions that eluded or exceeded the capacity of alternative analytic tools" that were explored by the original political exercises. These questions sufficiently resemble those that confront us in learning to cope with global interactions of people, technologies, and environment to warrant quoting here:

> - What political options could be imagined in light of the conflict situations portrayed? What likely consequences would each have?
>
> - Could political inventiveness be fostered by having those actually responsible assume their roles in a controlled, gamed environment? Would the quality of political ideas stimulated be as good or better than those obtained conventionally?
>
> - Could the game identify particularly important, but poorly understood, topics or questions for further study and resolution? What discoveries flow from this type of analysis that do not from others?
>
> - Could the game sensitize responsible officials to make potential decisions more realistic, especially with respect to likely political and policy consequences?

Future Histories of Global Change

Experience with political gaming indicated that each of the preceding questions could be given an answer of "yes, but only under favourable conditions" [Brown and Paxson, 1975; Brewer and Shubik, 1979]. The same experience led to several additional conclusions suggesting that the political exercises might serve as a basis for designing policy exercises to practise social responses to the carbon dioxide question and other environmental problems. Several of the most important of these potential linkages between exercises in political and broader social/environmental policy are summarized below.

- The political games were found to perform better than alternative approaches in studying "poorly understood dynamic processes . . . [and] institutional interactions" and in "opening participation to many with different perspectives and special competences, on a continuing basis over time" [Brewer, 1986]. The need to accommodate multiple political and environmental perspectives in efforts to learn effective responses to global change is central to the Perspective 2000 project. The "poorly understood" nature of our knowledge of long-term, large-scale environmental processes and institutional responses likewise requires no further elaboration.

> - The selection of competent professionals to participate in the political exercise proved to be critically important. This situation is analogous to that in chess or other games when inferior players tend to consolidate their own bad habits rather than being stimulated to improved or inspired play [Brewer and Shubik, 1979, p. 101].

To be useful, policy exercises on global change questions would almost certainly have to involve several of the very top scientists involved in recent environmental assessment plus their opposite numbers from the world of politics, finance, and industry. The political gaming experience suggests that there is little point in carrying out such exercises using second-rate consultants and middle-level bureaucrats. But securing the participation of sufficiently senior and innovative people may not be as difficult as it sounds. For environmental problems in general and the greenhouse question in particular, some of the best scientists and best policy people have been expressing a growing dissatisfaction over their inability to address each other except through stultifying layers of reports and bureaucracy, or in ritualized and guarded public encounters. The recent Villach-Bellagio workshop series is one response to this dissatisfaction [Jäger, 1988]. Carefully designed policy exercises might constitute the next step in providing the channels and forums of communication they seek.

> - One of the most useful aspects of the political game was its provision of an orderly framework within which a great deal of written analysis and discussion took place . . . Oral or written discussion of political problems that arise during the game is one of its most valuable features [Goldhamer and Speier, 1959, pp. 77-78].

Finding a way to order, to evaluate, and ultimately to use the great volume of literature now being generated on the scientific and practical aspects of global change is becoming increasingly urgent. The occasional grand conference has a role to play in linking theory to its practical implications, but that role is limited. As I have argued repeatedly, we need different opportunities to practise using the awkward tools our limited understanding has provided, and to learn how they can best be applied to the practical problems that confront us. Policy exercises could provide such opportunities.

- The "future history" orientation of the games' output makes them an excellent vehicle for exploring response options in terms of the time sequences of coordinated action they imply. The requirement that such actions taken in the games be internally consistent, and that ways be found to sustain them in the face of new problems, other groups' policy agendas, and wavering social will has often proven to be among the most powerful tools of policy analysis.[20] Some preliminary work in exploring time sequence constraints on social responses to the question of the greenhouse effect has been done in connection with the market penetration times of nonfossil energy technologies [Marchetti, 1979; Marchetti and Nakicenovic, 1979; Perry, et al., 1982; Edmonds and Reilly, 1985; and Lauerman, 1985]. This has yielded some of the more useful insights yet available on what energy policy can and cannot do about the practical implications of climate change. Policy exercises could be designed that would allow such market penetration findings to be explored in a more general context of the time characteristics for other responses and background changes discussed in this essay.

- The political games helped to refine future research priorities for technical participants and their staffs by exposing them to the kinds of questions their political masters would need answered under a range of often unconventional but still plausible future histories. This is an extremely important result since

> the game . . . may under favourable circumstances make more effective use of existing knowledge than other modes of intellectual collaboration, but it would be placing an intolerable burden on it to treat it as a machine that displaces theoretical thought and empirical research [Goldhamer, 1973].

Likewise, policy exercises would in no sense be a substitute for the careful research on basic science and response options that are required to improve the basic tools that can be used in fashioning effective social responses. But the exercises might help the research community to learn which answers – which tools – are likely to be most needed by policy people across a wide range of plausible future histories.

If experience with political exercises is any guide, we should expect that many of the ostensibly useful answers now being sought by scientists and analysts are ones for which no policy people are ever likely to ask the relevant questions. (My own bet is that most work on cost/benefit estimates of "the" impacts of environmental changes will fall in this category of answers no one ever asks for.) Conversely, we are likely to find a number of urgent questions emerging in the course of the policy exercises that scientists could have studied, but have not. I suspect that the design of global environmental monitoring and data systems would benefit tremendously from such policy experiments. In the final analysis, however, it is only by working through specific future histories of global change that we will have an opportunity to move beyond mere individual opinions to a critical, perhaps even consensual, assessment of what might turn out to be truly usable knowledge.

Conclusion

The debate about human-induced changes in the global system has now reached a stage at which further advances in coping with its practical implications will require much closer integration of political, economic, technical, and environmental perspectives than has until now been the case. Some form of policy exercise, aimed at writing future histories of global change and social response, seems to offer some prospect for fostering such integration. As one outcome of the Perspective 2000 project, several experimental policy exercises might profitably be conducted, each involving perhaps a dozen of the most informed and creative scholars and policy people concerned with particular aspects of global change. The only way to discover whether we would really learn something useful from such an experiment will be to try it. At a minimum, I suspect it would be fun.

Commentary by Pierre Dansereau

The Edge of Dreams

We are assembled here to range as widely as we dare in our prospection of the future, exploring what we are dealing with, what we are capable of knowing, and trying our spirit at ". . . dreaming dreams no mortal ever dared to dream before" [Poe], we are wildly casting questions and answers in the very noble game of probing the human predicament. I am tempted to recall the dying words of Gertrude Stein. When asked: "What is the answer?" she replied: "What is the question?"

This bit of wisdom – not so conventional – could invite us to recognize ourselves individually as either posers of questions or givers of answers. Most of us are better gifted for the one than for the other. Personally, I have had plenty of time to realize that my questions are more useful than my answers. My comments will therefore be open-ended.

Conventional Wisdom

Conventional wisdom is part of the historical flow of human self-consciousness. In its successive but very slowly changing forms, it conveys messages of consent to certain achievements of the social group and the fixation of short-term goals.

Thus, private property, home-ownership, professional and institutional affiliations, propriety of behaviour, all appear to Canadians as desirable as the underlying and more basic good health, normal intelligence, secondary education, and sexual fulfilment.

It attaches to tried and true historical experiences whose repetition has proven advantageous to the group, such as the fear of God, the respect of parents, the benefits of hard work, the consumption of healthy food, the repression of personal violence, and the respect of property. All of these have been variously and effectively codified in explicit legislation and bolstered by sanctions.

Conventional wisdom is therefore very pervasive. It largely goes without saying and strongly influences sentiment and decision. In the report issued by a federal commission [Hellyer, 1969], we were at pains to identify the "conventional wisdom" motivation of public policy on housing and urban development, and encountered, of course, a number of ill-inspired backward-looking convictions. Such were the intrinsically evil nature of urban density (not of crowding), the overwhelming desirability of family property (not of decent living space), the unbearable burden of city planning (not of zoning laws), and so on.

Thus, the identification, in a given national or regional population, of the tenets of conventional wisdom is the indispensable starting point for a look into the future, since this particular state of mind expresses the sum of assents (and occasional dissents) and provides the very matrix for future development, unless elements of change are introduced.

Surprise

Futurologists [Valaskakis, et al., 1979; Jouandet-Bernadat, et al., 1982] distinguish *heavy trends* and *seed events* (much better in French: *faits porteurs d'avenir*). Heavy trends are usually very apparent: consumerism, pollution of the environment, conspicuous spending, loud entertainment, extended credit, private transport, fast food, TV commercials, and pornography. Seed events, on the other hand, appear in cooperative housing and food distribution, conservation of wildlife and biological agriculture, shared work and transportation, improved speech and reading habits, thematic cinema, and participatory museology.

Since many heavy trends exercise strong constraints on our society, speculations about our future properly start with a ponderation of these built-in obstacles. Many of them have undesirable and even intolerable effects that are only weakly countered by emerging seed events. The latter do not loom very large on our horizon, but we can possibly evaluate their power by comparing them to similar ones that have, in the past, opened new ways of life or even modified the course of history. At the very least, these limited experiments provide a legitimate background for the scenarios with which researchers spell out their working hypotheses.

This brings about the element of surprise, which is more often than otherwise entirely in the eye of the beholder. If you are told: "I have never seen such an ugly building, such a bad deal, such a beautiful woman!" or, "I have never heard such nonsense," the obvious rejoinder is: "Where have you been?"

Paul Valéry stated that Napoleon's decline started when he was no longer astonished. (Would this apply to Pierre Trudeau?)

There is, of course, a large gamut from unawareness to amazement, to astonishment and to other minor delights. Diaghilev, when he urged Jean Cocteau to astonish him, was playing the intellectual game that stimulates innovation. And this comes nearer to our purpose than Robinson Crusoe's discovery of a footprint on the sand. Montesquieu touched upon the quality of surprise when he wrote:

> That disposition of the soul that leads it always towards different objects, allows it to taste all the pleasures that come from surprise: a sentiment that pleases the soul by the display and the suddenness of action, since it perceives or senses a thing that it does not expect, or in a way that it had not anticipated.

In this sophisticated assembly, we are beyond this and yet the openness, the very naiveté that permits the entry of surprise is at the source of invention and discovery. The effect of surprise is to break continuity, a necessity inherent even to the best-organized and coherent minds. Without an urge to surprise yourself, you have blocked all access to innovation and even to the understanding of reversals and revolutions. Should we proceed on the premise that change is inevitable and essential (as stated by the Brundtland report, [1987]), then the availability to surprise becomes mandatory.

Tools of Investigation

It is therefore in new thinking and working habits that lies a design for the "chart of man's course and the charter of man's destiny" [Dansereau, 1980]. I often tell my students not to attempt a course of study if it is not fun. Such is also the concluding remark of Dr. Clark's essay. Giovanni Papini [1932], in a great international lyric, put it this way:

Gesang of a perduto amor

Beloved carinha, mein Weltschmerz
Égorge mon âme en estas soledades.
My tired heart, Raju presvéthyj
Muore di gioia, tel un démon au ciel.
Lieber Himmel, castillo de los Dioses,
Quaris quod durerà this fun désespéré?
Lampada theis drévo rizni . . .

Desperate fun, indeed, when the game, according to the Brundtland report [1987], consists in displaying enough imagination to chart a new course, away from the disaster towards which we are heading! The lost love of this poem is the coming generation that cannot sail the seas of our conventional wisdom without heading for a black hole.

Please excuse the accumulation of metaphors, although I suspect that they can be taken literally. One need hardly be a prophet of doom to forecast the predicament of the rich nations which cannot continue their consumption of 80 per cent of world resources. The optimistic yuppies, well at ease in the present conjuncture, cannot safely be put in command.

What habits must we develop in order to cope with the rampant disorder of our planet? Those who speak in numbers and those whose voice is narrative must achieve common ground, aim at common goals, and invent a workable methodology. Above all, they must envisage realistically the coming phases of what Darcy Ribeiro [1981] has called the civilizing process. The escalation of energy liberation by man [Dansereau, 1970 and 1985*a*] has left readable marks on every landscape. It is as essential as in the days of Julius Caesar not to burn the books that record human history, that give us access to the past achievements that cumulatively determine our modern identity.

Scenario, simulation, equation, film or novel, the vision of Thomas More and of Henry David Thoreau, the inferno of Dante and Orwell, the new world of Huxley and Skinner, offer us the tools that will forge the future. The new game needs all the partners it can command. "Economics is a science of life, nearer to biology than to mechanics" in the early view of Alfred Marshall [1906]. Passet [1979], who quotes him, feels that economics cannot thrive on its own substance and methodology if it is to appropriate the larger theme of human survival through change. This is what the Brundtland report [1987] is all about.

Nature of the Environment

I am not willing to say "a farewell to utopia" with Joseph Epstein [1988], but I can agree with him that in recent years "the way the world *is* became a subject of greater fascination than the way it *ought* to be." Such a preoccupation seems very promising to me as it is likely to establish firmer ground in the present for building the future.

Impact assessment is a field of much quantitative plodding, of uncertain addition and multiplication, and of hopefully exhaustive line-ups of criteria [Dansereau, 1985*b*]. It is not surprising that the definitive method has not been achieved since the differing requirements of landscapes virtually preclude a uniform scale of appraisal and since priority of values also shifts drastically. The frequent lack of meaning of some of these exercises is often due to partial and uneasy borrowings between disciplines and to the slant of the encompassing framework. The developer – private or public – who commissions the enquiry has often consulted the "best available specialists," but retains only short-term implications of their findings. Economic yield, not sustained balance, is the goal. In fact, explicitly ecological concepts are not applied, such as exchange, sharing, succession, diversity, and tolerance. Some common ground, however, has been covered through the penetration of economic concepts into ecological thinking: budget, investment, efficiency, strategy, and productivity [Dansereau, 1987].

The early detection by ecologist [von Marilaun, 1863] and naturalist [Thoreau, 1854] of the phenomenon of succession, although it may have been overworked during the 1940s and 1950s [McIntosh, 1985], provides an opening to urban planners as well as to economists. The distinction [Tansley, 1929; Dansereau, 1956*b*, and 1974] between autogenic, allogenic, and biogenic sequences has proven useful for the management of forestry and agriculture. The pathways of spatial alteration and replacement, whether in a virgin forest, a cultivated field, an industrial plant, or an urban extension, present many complexities of rhythm, pace, tempo, and duration. The "best estimate" of the time-space units and of their order of replacement is, even today, based on very little actual experiment or observation. The schools of thought that have inspired an investigation of the continuity/discontinuity alternatives have sometimes weighted their methodologies to divergent working hypotheses. The universality of ecological laws remains very much in question.

One such law, which I tentatively formulated in 1956, 1956*a*, and 1966, and just as tentatively restate here, is possibly useful, especially if applied to the process of surprise, which we are concerned with in the present context. It reads:

> Law of cornering. The environmental gradients upon which species and communities are ordained either steepen or smoothen at various times and places, thereby reducing utterly or broadening greatly that part of the ecological spectrum which offers the best opportunity to organisms of adequate valence.

This environmental strategy applies at various orders of magnitude: bioclimatic, topographic, and ecotopic. It is responsible for a number of unconformities (or sharp discontinuities) such as a bog/swamp contact, or a rurban contest. It shows up in soil catenas, vegetation zones, and employment charts.

Much remains to be said on relevant environmental description and on the most useful parameters for the ponderation of spatial and temporal potentials. Land-use survey methods of many kinds are available at different scales. The Brazilian inventory, for instance, is a model of its kind (RADAMBRASIL: some 30 volumes). A rapid scanning of the planet does not reveal a thorough descriptive inventory. Man and the Biosphere (MAB) has not yet done the job for land use that UNESCO has achieved for vegetation.

An Opening on the Coming Century

Dr. Clark's itinerary has led us from the necessary departure of conventional wisdom and the inadequacies of attitude and methodology through the hazards of surprise to a contemplation of our relative ignorance of the land. He has proposed that we stop to consider discontinuous change not so much as a hazard but as an opportunity for modelling the future, not by piecing together elements of the past but by daring to write new scenarios. Decision costs in terms of heavier bureaucracies call for a more sophisticated programming of consultation.

Is conventional wisdom a braking force that will always be needed if we are able to disengage it from some of the dead-ends it has reached? In other words, does it show the landmarks of historical continuity?

In reading the historical process, there is little doubt that economists are much in need of exchange with other disciplines, as I think the present occasion emphasizes. But when engaging in interdisciplinary endeavour, it is imperative that some common ground be established, in terms not only of vocabulary, but of concepts. It is now admitted that the term ecosystem is no longer exclusively ecological, no more than pizza is Italian. Cultural and intellectual *appropriations* are fortunately frequent, but often remain ambiguous. In my own experience of the last 25 years or so, it is the meeting *in the field* of the practitioners of different disciplines that has led to sharper definitions and proper use of notions emerging respectively from earth sciences, biology, sociology, anthropology, architecture, engineering, economics, ethics, and philosophy. The foregoing alignment, it may be noted, follows the ascending order of energy flow in any ecosystem: from the litho-hydrosphere to the biosphere and on to the noösphere [Vernadsky, 1945].

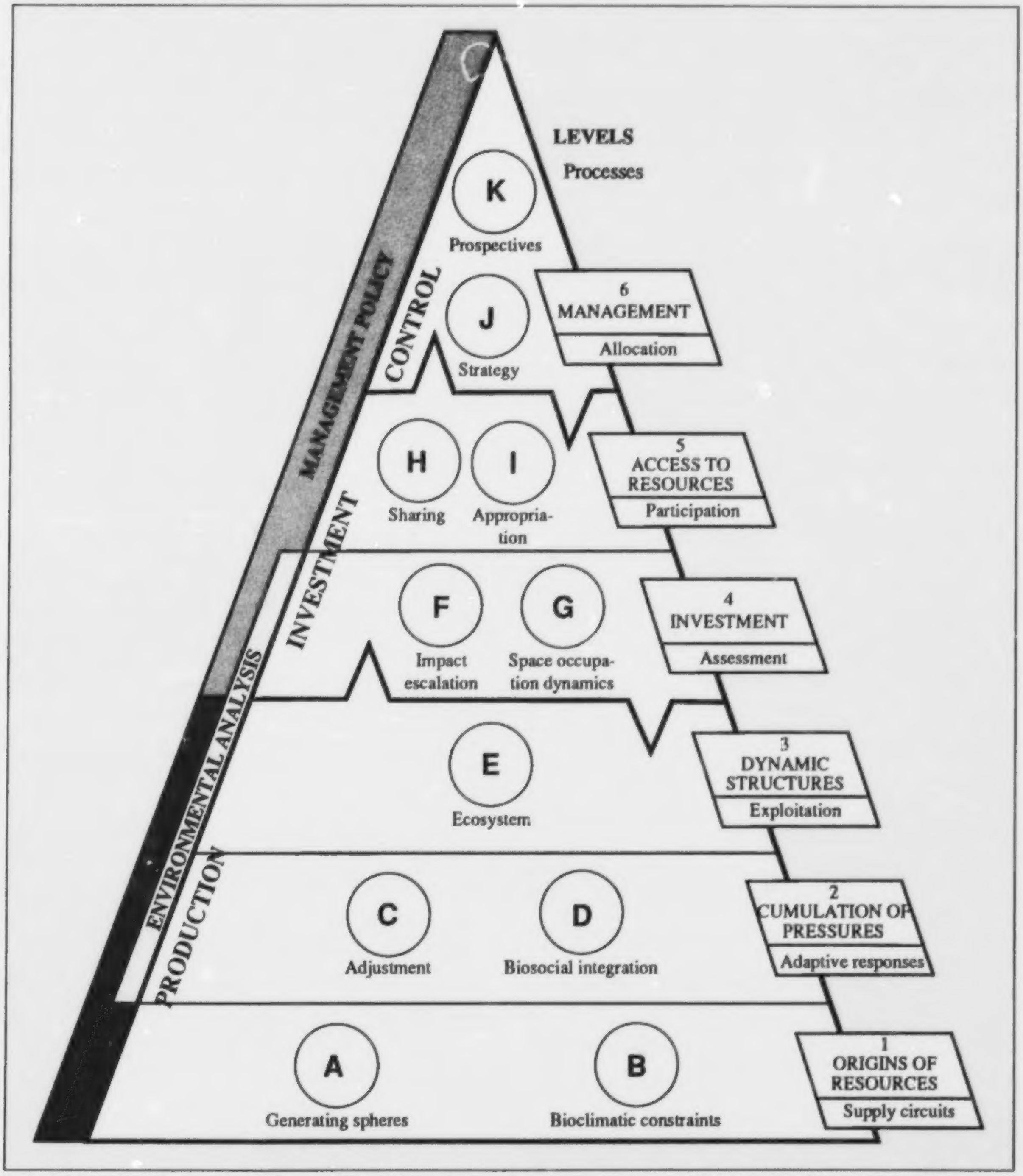
The conjunction of forces that is needed to plan the future before the future overwhelms us requires lucidity and discipline. It demands of the participants, who are going to adjust their collective view to challenging scenarios such as we have before us, that each one occupy his proper niche. The question of authority – or better, mastery – is related to disciplinary competence: the ornithologist really knows birds, the economist knows market fluctuations, and the sociologist knows family structure. But any problematic shows the concentric circles of valuable judgment away from such centres. It is this geometry of competence and judgment that underlies interdisciplinary endeavour. In other words, a really capable specialist can offer valuable judgment in other fields, and it is the weight of such critical bearings that provides useful interdisciplinary exchange and establishes relevance to the problem at hand.

I will venture, in conclusion, to present a framework for environmental design that allows us to draw the connections between the natural and social sciences and their counterparts in implementation. This pyramid is built in three *stories* that are based on the outstanding operations of *production*, *investment*, and *control*. These, in turn, are subdivided into six levels that reflect the *processes* involved. Origin of resources, cumulation of pressures, and dynamic structures are submitted to *ecological theory* converging upon the ecosystem as the focus of production. *Environmental analysis* overlaps onto the second storey and relates productive agents and forces to the various forms of investment. *Management policy*, in turn, starts with investment and goes on to the third storey where strategies and perspectives are shown to relate the underlying processes in absorbing their shocks and orienting their issues. Eleven focal points are offered that correspond to environmental units and operations. It is in such an image of environmental dynamics that reside the different competences that are called for, mostly natural sciences at the lower three levels, predominantly sciences of man at the upper three levels.

It would be improper to engage in an exegesis of this scheme in the present context. I only present it as one example among others of the general array of disciplinary and socio-economic integration that is actually encountered in the field.

Figure 1-1

Framework for Environmental Design


LEVELS
Processes
K
Prospectives
J
Strategy
H
Sharing
I
Appropriation
F
Impact escalation
G
Space occupation dynamics
E
Ecosystem
C
Adjustment
D
Biosocial integration
A
Generating spheres
B
Bioclimatic constraints
6
MANAGEMENT
Allocation
5
ACCESS TO RESOURCES
Participation
4
INVESTMENT
Assessment
3
DYNAMIC STRUCTURES
Exploitation
2
CUMULATION OF PRESSURES
Adaptive responses
1
ORIGINS OF RESOURCES
Supply circuits
MANAGEMENT POLICY
CONTROL
INVESTMENT
ENVIRONMENTAL ANALYSIS
PRODUCTION

Note While *ecological theory* is primarily a product of the natural sciences, *management policy* properly derives from the humanities. *Environmental analysis* straddles both these areas. (The above framework is explored in detail in the forthcoming book *Ecological Impact – Range and Response*.)

Models, simulations, speculations, and projections of the past and present into the future are the stuff of dreams about our predicament. To wander on the edge of dreams is to liberate the intuitions that will lead us to such formulations as we are now invited to consider. But let us hope that some of our most daring speculations are sufficiently nourished by personal experience that some of our dreams will have a sharp enough edge to bite into the future.

2 Political Change in the 1990s

Charles William Maynes

In discussing the problem of predicting the future, William Shakespeare once wrote: "We know what we are, but know not what we may be." Indeed, the problem is even more complex than the "great bard" suggested. For as demonstrated by the various revisions of history in which nations and individuals regularly engage, it is difficult to know even who we are. And if we are not sure who we are, how can we ever know who we will be?

A particularly touching confirmation of this point recently came to light. Forty years after it had rejected Frank P. Bourgin's Ph.D. thesis presenting unorthodox views regarding the economic policies of America's Founding Fathers, the University of Chicago decided that it had made a mistake and awarded Mr. Bourgin his degree in June 1988. His thesis entitled "Affirmative Government in the Early American Economy" had attacked the traditional view that the Founding Fathers held economic views similar to those of Adam Smith and had argued instead that these men were committed to using the powers of the federal government to develop the economy. Late in life Mr. Bourgin had sent a summary of his rejected thesis to the distinguished American historian Arthur Schlesinger, Jr., whose own work in recent years had led him to conclusions similar to those reached by Mr. Bourgin four decades earlier. Schlesinger thereupon wrote to the University of Chicago to urge that it reconsider Mr. Bourgin's work, which Schlesinger publicly pronounced "pathbreaking" [*The New York Times*, 22 April 1988, p. 1].

Such a shift in historical perspective is not all that unusual. Over the years, American historians have believed that the Reconstruction Period after the American Civil War was one of unsurpassed corruption and cruelty, and subsequently that it represented a promising time of reform prematurely crushed. They once considered Harry S. Truman one of America's worst presidents and now regard him as one of its best. The American commitment in Vietnam has variously been regarded as an honourable defence of freedom, as a dishonourable attempt of whites to maintain a colonial relationship, and in the eyes of the current administration in Washington as a "noble cause" that America failed to carry through to an honourable end.

But even if professional analysts sometimes believe that they have a clear focus on the past, providing a basis for peering into the future, there is another difficulty in trying to act as a clairvoyant. Social commentator Eric Hoffer once wrote that "the only way to predict the future is to have the power to shape the future." For much of the postwar period, of course, there was a strong belief, at least among western publics, that their governments were capable of determining the future. Through sound social engineering and wise economic policies, the publics believed governments could shape the future. Western publics today are less and less likely to hold such views and their governments have generally abandoned such ambitions. The cult of the free market, so strong in most western governments, amounts to an admission that governments no longer believe that they are really in control. Japan remains one of the few developed societies where the leadership class still believes that it can shape the future [Morse, 1987-88]. Can it be a total accident that it is the one major country that seems to be outpacing the others?

Determinants of Change

What, then, does determine the rise and fall of major states on the world stage? Until recently, historians from the socialist countries contended that they had the answer. They relied on Marxist doctrine to elucidate a society's pattern of growth and development. Observing the stagnation now regnant in socialist countries, they have recently seemed less certain in their views. Most western analysts, however, have always been uneasy with Marxism as the principal guide to the future. They might concede that Marxism has provided the world with central insights into the development and evolution of modern societies. On the economic base of a country necessarily rests its political and military structure. If the nature of the economic base is well understood, much else suddenly becomes clearer.

At the turn of this century, for example, it was fairly clear to many observers that Germany, Japan, Russia, and the United States were the emerging powers. Each had special handicaps, to be sure. Germany was trapped by geography in the centre of Europe, surrounded by powers determined to hem it in. Japan lacked natural resources and was not a western country in an era when the great powers of Europe determined the rules of the international game. Russia was economically backward and hobbled by an obsolete form of government. The United States harboured the cancer of racism within its bosom and was struggling to create a national character out of the many nationalities that had settled in America. Yet each of these countries enjoyed two enormous advantages over other states: impressive rates of economic growth and a dynamic population. Moreover, the leadership class in each of these countries was expansionist by temperament. It would have therefore been a good guess that the history of the next several decades would revolve around the politics and diplomacy of these four powers. And it did.

Most western observers, however, would not be satisfied with an analysis of political change and evolution that relied so exclusively on an extrapolation of economic growth figures. Such an approach leaves out the element of great personality or dramatic political movements in the history of nations. In recent years, for example, such different figures as Charles de Gaulle, Mikhail Gorbachev, the Ayatollah Khomeini, and Ronald Reagan have demonstrated that these are factors that must be taken into account.

Before his return to power, most analysts of postwar France thought that de Gaulle's political career was over. Before Gorbachev confirmed his reformist course, almost to a man western Sovietologists argued that no leader who emerged from the Soviet *nomenclatura* could possibly merit the title of reformer. In Iran no one except his immediate followers could have believed that the Ayatollah could ever end up as the supreme ruler of Iran. And Ronald Reagan was considered unelectable.

Yet in each case unexpected events made the improbable possible. France's entry into a policy *cul-de-sac* in Algeria progressively narrowed that country's political choices so that in the end there was no one else to whom the country could turn except de Gaulle. Only he could persuade the French right to give up its colonial dream in Algeria. In the Soviet Union the gathering social *malaise* and economic stagnation appear to have so stunned the *nomenclatura* in that country that its members finally became willing to permit a man like Gorbachev to shatter one idol after another in a quest for national salvation.

In Iran, the skyrocketing price of oil blinded the Shah to his country's social and economic reality. He embarked on policies so unpopular that he helped bring the Ayatollah to power. In the United States, it is difficult to believe that Ronald Reagan would have ended up in the White House had the hostage crisis with Iran not taken place. For that crisis convulsed international oil markets, helping to bring about the inflationary burst of the late 1970s that undermined Carter's reelection bid; and it served to rekindle the American sense of humiliation arising from its defeat in Vietnam, as another Third World country defied America with impunity.

Of course, it is possible to argue that even the arrival of such charismatic figures as these four did not fundamentally change the history of their countries. But the argument is hard to sustain. France had always been a difficult ally, but only de Gaulle would have taken France out of NATO's military structure. It probably was inevitable that the Soviet Union would find leaders anxious to embark on a new agenda of reform once the wartime generation had passed from the scene. But was it inevitable that the country end up with a leader as cosmopolitan as Lenin and much more liberal?

Regarding Iran, there are obvious similarities between the fierce nationalist effort of Mohammed Mossadegh in the early 1950s to end foreign intervention in Iran and the current efforts of the Ayatollah to chart an independent course for his country. But these similarities notwithstanding, the impact of personality on history is clear in the comparison. Mossadegh's effort, unlike the Ayatollah's, did not roil the politics of an entire region. There was little effort to export the revolution through deed or example.

A similar point can be made about the effect of Ronald Reagan on the course of American politics. After America's defeat in Vietnam, a conservative reaction was almost inevitable. It was also inevitable that an effort would be made to rein in the welfare state as a greying of the population drove up its costs. But it was not preordained that a conservative president would embark upon the most massive defence spending spree in history while cutting taxes at the same time, thereby converting America into the international community's largest debtor nation.

In short, each of these four men changed the history of his country decisively, if not always for the better. That their ascension to power was not a total surprise or accident does not obviate the fact that their use of power altered history.

In trying to project the evolution of the international system until the year 2000, one is therefore handicapped in that if few were able to predict these surprise developments in the past, how can anyone possibly foresee comparable developments in the future? It seems reasonable to assume that figures of equal power and political impact will push their way onto the world stage between now and the end of the century. But we cannot know who they will be, what their political direction will be, or which countries they will govern. This we do know: if Gorbachev survives or is replaced by a leader of similar sentiment, the world will be quite different than if the Soviet Union returns to the kind of sterile leadership represented by Leonid Brezhnev or similar leaders. Likewise, the world will be quite different if the United States puts forward a leader of even narrower nationalism than Reagan in his first term. For the purposes of this paper, we shall assume that neither contingency is likely to occur. In other words, Gorbachev may falter but the Soviet Union is unlikely to abandon his reform program even if it slows its implementation. Likewise, the United States may well adopt policies more narrowly nationalistic than in the past, but it will not abandon abruptly its postwar leadership role.

Changes in Military Technology

Another path for approaching our task might be to ask whether there are developments in other fields that will alter the nature of international relations in the remaining years of this century. In the past, one such development was the invention of the machine gun. It revolutionized international politics.

Because of their monopoly over this technological and military breakthrough, European generals achieved astounding victories in the last half of the 19th century. In conquering the Sudan, Britain suffered 48 deaths – of whom three were British officers and 25 were British enlisted men – and 434 wounded. At the same time, British troops killed more than 11,000 Dervish combatants. Examples like this, albeit not as lopsided, could be repeated in one Third World country after another. Technology had changed history. As the British author Hilaire Belloc pointed out, "Whatever happens, we have got/The Maxim Gun, and they have not."

At the end of World War II, another weapon altered the course of history – the atomic bomb. It did not stop all wars. Rather it channelled violence into the Third World. But the atomic bomb did prevent another world war from 1945 to the present. At least it seems reasonable to assume that the extreme distrust and animosity that characterized U.S.-Soviet relations for a considerable period after World War II would have flared into actual conflict but for a general fear that war might escalate to a nuclear exchange and destroy the United States and the Soviet Union as major powers.

Is it likely that another military breakthrough, comparable to the machine gun or the atomic bomb, can alter as radically the course of international relations? Some see such a possibility in the field of so-called smart weapons, i.e., weapons able to seek out targets, even mobile targets, with incredible accuracy, thanks to electronic advances.

Smart weapons seem to offer this promise because it is hoped that they will help to offset two developments that have tended to equalize the power relationship between the great and the weak on the international scene. First, nuclear weapons have proven unusable except as a deterrent against nuclear attack. Their destructive power is too great for any rational objective except deterrence against their use. Second, even weak countries have accumulated enough conventional firepower to inflict enormous casualties on developed states attempting to carry out military action in the Third World. The United States alone has lost more than 100,000 men in the postwar period in military conflict in the Third World. The Soviet Union admits to more than 13,000 combat deaths in Afghanistan.

With smart weapons, however, developed countries would again be able to work their will on the developing world without suffering serious casualties. The model everyone has in mind is Israel's electronic disabling of the Syrian anti-aircraft batteries during the 1982 Lebanon War, which then permitted the Israeli air force to dominate the skies. The American bombing of Libya was another example, although somewhat less successful because of the loss of two aircrafts. American electronic gear was able to blind or disable the Libyan weapons during the critical period of fighting.

The U.S. Commission on Integrated Long-Term Strategy, in its January 1988 report, envisages "dramatic developments in military technology" over the next 20 years. According to the commission, the exploitation of microelectronics and the development of directed energy will enable combatants through greater precision, range, and destructiveness to "extend war across a much wider geographic area, make war much more rapid and intense, and require entirely new modes of operation." The new degrees of precision in turn will allow conventional weapons to substitute for nuclear weapons in many cases. The goal, in the words of the commission, will be "to use smart missiles that can apply force in a discriminate fashion and avoid collateral damage to civilians."

Obviously, the impact of such weapons would be greater in the Third World than in the First World. In Europe the military stand-off would continue in any event. It is difficult to see how even the new smart weapons could alter political arrangements that no one – certainly no one in the West – wishes to assume any risk to change. But with weapons even "smarter" than those already deployed, the United States and other major powers might have a freer hand in the Third World. Had the United States had the benefit of such highly developed smart weapons in the mid-1960s, perhaps it might have prevailed in Vietnam, since the main consideration preventing the United States from striking North Vietnam even harder was collateral damage to civilian targets.

There are important reasons, however, for believing that, even if successfully developed, smarter weapons will not give the developed states the edge they previously enjoyed. First, in this area, the technologists often promise more than they can deliver. In other words, the weapons are unlikely to be as "smart" as their creators say they will be. It is not reassuring to recall that when the United States used "smart bombs" to attack Libya, it was embarrassed when some of them turned up in the garden of the French ambassador and other civilian sites, killing large numbers of civilians in Tripoli. Second, it seems unlikely that intelligence will ever be as smart as the weapons developed. Probably no site was more carefully scrutinized than the Sontay prisoner of war camp in North Vietnam that American special forces assaulted at great risk on 2 November 1970, only to find that the North Vietnamese had moved their American captives before the U.S. commandos struck.

And if intelligence is poor and civilian casualties are high, major states will again face a new political problem that has restrained their use of force in recent years – namely, the shift in popular attitudes towards war that can be seen in virtually all western countries.

There is too little reflection in foreign policy literature on the change in the popular attitude towards war that has taken place in most countries. In the last century and for a good part of this century, war was glorified. In the words of a 19th-century British field marshal, Garnet Wolseley, "manshooting" was then seen by many as "the finest sport of all." During the Spanish-American War, Theodore Roosevelt entertained his sister with an exciting account of how he shot a Spanish officer and saw him double over "like a jack-rabbit." There must have been many similar letters sent home by excited young officers in colonial armies. Wolseley and Roosevelt were not idiosyncratic. They expressed the mood of the day.

Two world wars, particularly World War II, dramatically changed such attitudes in ways that are only now coming to be appreciated. The Nuremberg War Crimes Tribunals, in particular, helped to establish new ground rules regarding the conduct of nation states. Human life was accorded a new sanctity, reflected now in the provisions of international law. As this shift in attitudes has steadily penetrated the thinking of a widening circle of concerned citizens within western societies, a major restraint on western governments' ability to use force has developed since so many forms of modern warfare do result in significant civilian casualties.

In the years since the Nuremberg trials, slowly but steadily, this new code has been internalized in the minds of western publics as a heightened awareness of the indiscriminate brutality that war has developed. Thanks to the United Nations, slowly but progressively, the provisions of this new code have also been institutionalized in a growing body of international human rights law. The response of governments has been twofold: there has been a drive to make weapons more accurate and governments have tried to make their employment more covert. Neither tactic has worked.

The American use of force in Lebanon demonstrates the limitations of the first approach. In the fall of 1983, the United States was eager to use military force for political ends in that country. In an effort to shore up the Lebanese government dominated by the Christian minority, the United States ordered the battleship New Jersey to fire into the hills surrounding Beirut. In response to the predictable public concern over possible casualties among innocent civilians, the Pentagon replied that the New Jersey's guns were so accurate that firing them was "like tossing a Volkswagen onto a tennis court." Then, nearly two years later, the U.S. navy quietly announced that it was undertaking an extensive program to improve the accuracy of its recommissioned World War II battleships. It turned out that the New Jersey was using powder dating from the Korean War and that its shells – each about the weight of a Volkswagen – tended to land wide of target.

The next chapter in this saga came during the June 1985 hijacking of a TWA airliner. American passengers held hostage were forced by their captors to watch video tapes of the damage to Lebanese villages caused by the errant shells from the New Jersey. Somehow, one believes that even with more recently produced powder, this story might have unfolded in roughly the same way. For even if the weapons are perfect, those using them never are. Intelligence may be poor, implementation may be flawed, and motives may be mixed.

Covert operations seem to offer an alternative escape from postwar standards. But these operations suffer from several major disadvantages. They are difficult to carry out. They carry a high risk of national embarrassment if they are revealed. And, most important, when news of them becomes public, the citizens of democratic countries turn out to be extremely reluctant to endorse actions that seem in such total violation of what the ordinary citizen has been taught is legal or moral. Given the dilemma officials in democratic countries face, one begins to understand better their growing pressure on the press not to report clearly and in detail what governments are up to in the field of military interventions. It is yet another way to avoid the demanding constraints of the new moral code, whose impact is growing, not receding.

Often western officials who dislike these developments contend that if a new code of behaviour does exist, its consequences are bound to be pernicious because only the West is bound by its terms. But, in fact, a dominant feature of the international scene is a steady growth in respect for human rights worldwide. It is hard in the social sciences to establish clear linkages and precise causation, but there does appear to be some relationship among such different phenomena as: the Sandinistas' decision to abolish the death penalty after overthrowing the brutal Somoza dictatorship, the growing pressure on conservative governments in Central America to curb the activities of the right wing death squads, the steady improvement in the position of racial minorities in western societies, the growing openness that is developing in socialist countries, the clear unwillingness of any government of whatever political stripe to admit that it tortures, and the demonstrated willingness of major powers like the United States or the Soviet Union to accept defeat rather than exceed certain norms in the use of violence.

Many argue that this hesitation is the consequence of television, which brings the blood cost of war into the living room of the average citizen. But the hesitation was developing long before television. It is a consequence of democracy and civic literacy. Britain had trouble sustaining popular support for its army's actions during the Boer War at the turn of the century. France found that it could not sustain popular support for the war effort in Vietnam. These setbacks took place before the age of television. That fact should convince us that the problem is not only new communications technology but also something fundamental about the way that a democratic state conducts national security policy when its citizens are allowed to play an active role in policy formulation. Modern governments cannot move mass armies like pawns on a chessboard in the manner of ancient kings. Men must have a reason to die.

Nor are only democratic countries affected by these new attitudes. It seems increasingly clear that Kremlin leaders faced growing popular unease over the mounting Soviet casualties in Afghanistan. It is too often forgotten that it is not enough for a government to suppress news of an event in its own press. Because of the enormous increase in political consciousness worldwide, the population of almost all states, and certainly a state like the Soviet Union, is much more sophisticated than in the past. It is also much more resourceful in informing itself.

To be sure, movement is uneven. The norms that are respected still permit enormous casualties among soldiers and civilians. Millions have died in wars in Afghanistan and Vietnam. Still, many millions more would have died were the restraints mentioned without moral or political force. And because these restraints do have force, it is important to protect and strengthen them. In this regard, it is particularly ominous that in the Middle East some Iraqi and Israeli officials recently have started to describe their enemy as some form of insect. Dehumanizing one's opponent is often a first step towards removal of any restraint on the use of violence against an enemy. It is therefore probably no accident that at the same time that Iraqi officials were making such offensive statements, the Iraqi army was using chemical weapons against Iranian troops. Characterizing the Palestinians as "drugged roaches in a bottle," as a former Israeli chief of staff did, or as "grasshoppers," as the current prime minister of Israel has done, subliminally permits Israeli officials to justify repressive measures that have resulted in the deaths of many Palestinian children as well as adults. Indeed, since the beginning of the uprising on the West Bank, the Israeli army has inflicted casualties that on a scale proportionate to the population literally exceed U.S. casualty figures in Vietnam, where the United States was engaged in an active shooting war.

The outside world should react in the most vigorous way possible to counter such trends, which seem to suggest an attempt to dehumanize an opponent. The main point seems clear, however. The predominant trends are in favour of greater respect for human rights in the world. As a result, nations will confront greater and greater restraints on the use of military force in the conduct of international relations.

But suppose that the revolution in smart weapons does take place. Major countries such as the United States may still remain reluctant to take full advantage of them because of another development – namely, the growing military might of other states. Not only has there been a steady spread to Third World states of sophisticated conventional weapons, but there also has been a steady movement towards the greater proliferation of nuclear and chemical weapons. It is not that the United States and other major countries need fear a defeat if they attack smaller countries armed with these weapons. But their spread imparts a new cost to war and a new fragility to the international system generally.

In recent years, a growing number of countries have successfully defied the international regime in favour of non-proliferation. Israel is believed to have more than 25 aircraft-deliverable nuclear weapons. More ominously, it is testing a missile with a range sufficient to enable it to hit some parts of the Soviet Union, which has issued a public warning to Israel.

Pakistan is on the threshold of becoming a nuclear power. And most observers believe that, like Israel, Pakistan could develop reliable nuclear weapons without a test, particularly if, as is alleged, it has received weapons-design information from China in the past [Spector, 1985, p. 113].

The nations that feel threatened by these developments have taken steps in response. In September 1984, the Syrian Defence Minister Mustafa Tlas stated that the Soviet Union had promised Syria that if Israel used nuclear weapons against Syria, the Soviet Union would "make nuclear weapons available to us." Soviet officials have informed some western visitors that the Soviet Union would assist Syria, if necessary, with tactical nuclear weapons if Israel were to use nuclear weapons first against Syria. Another Syrian response, more immediately destabilizing, has been to develop a chemical weapons capability.

India has responded to the Pakistani program by escalating its threats to join the ranks of the nuclear powers. In an interview with the French newspaper *Le Monde*, Indian Prime Minister Rajiv Gandhi warned that India would have to think "seriously" about the nuclear option if Pakistan developed the bomb and in the event that India took the decision to go nuclear, "it would take only a few weeks or a few months" [Spector, 1985, p. 95]. This statement suggests that India is, in effect, already a nuclear weapons power. Everything is ready to be assembled in an emergency.

Looking ahead, it seems virtually certain that by the end of this century several new countries will join the ranks of the nuclear or chemical powers. It is estimated that at least 20 countries currently possess or are striving to acquire ballistic missiles capable of carrying chemical weapons or nuclear charge [*Bulletin of Atomic Scientists*, June 1988, p. 14]. Any country with either a serious national security problem or regional or global ambitions is a likely candidate. Now that Iraq has defied the international prohibition against the use of chemical weapons, countries may channel their energies in this direction. In all likelihood, proliferation, chemical, or nuclear will assume the character of the nuclear program in Israel – known but unconfirmed. Neighbouring countries, in turn, will attempt to develop their own arsenals.

Among the developed countries, related developments are taking place. Few have reflected adequately on the consequences of the nuclear arms modernization programs being undertaken by the British and the French. By the end of this century, these two powers will have increased the number of land- and sea-based missile warheads from the current level of roughly 300 nuclear charges to at least 1,200. Unless there is some major breakthrough in national defence against missile attack, this increase will revolutionize the defence of the West. The commander of a single British or French nuclear submarine will have enough power under his command to wipe out every major and medium-sized city in the Soviet Union.

The momentous nature of this new capability can be best understood by recalling that in 1967, Robert McNamara, the former U.S. Secretary of Defence, suggested that the destruction of perhaps one fourth of the Soviet population and between one half to two thirds of Soviet industrial capacity would mean the "elimination" of the Soviet Union as "a major power for many years." Yet the 100 largest cities in the Soviet Union house one fourth of the Soviet population and hold one half of its industries. Thus by the end of this century, Britain and France will have the capacity to destroy the Soviet Union many times over [Seignious and Yates, 1984].

Meanwhile, China has on order eight ballistic-missile nuclear submarines with more planned [International Institute for Strategic Studies, 1987-88]. If its nuclear power increases accordingly, then in light of the strategic changes that are taking place in France and the United Kingdom, it seems fair to say that by the century's end the globe's strategic environment will have changed dramatically.

Will the world be safer? According to the assumptions that have governed the non-proliferation policy of the major powers for most of the postwar period, the answer is clearly no. A proliferation of nuclear weapons increases the likelihood that they will be used. And the assumption has been that once used, they would lead to a steady spiral of escalation that would ultimately draw in the other nuclear powers, especially the superpowers.

One cannot say that these fears are misplaced. One has only to look at the Middle East to see that locally generated conflict does have the potential to draw in the great powers. In 1973, the United States went on nuclear alert, in order to dissuade the Soviet Union from sending troops to assist Egypt when Israel refused to adhere to a cease-fire that the two superpowers had worked out. Given America's commitment to Israel and the Soviet Union's commitment to Syria, it is imaginable that the use of nuclear weapons by Israel against Syria would have horrendous consequences not only for the region but for the world. More worrisome, however, is Israel's acquisition of missiles capable of reaching Soviet soil. One can imagine a desperate Israeli government threatening to use this capability as a way to force the American government to enter into the conflict on Israel's side even if this meant threatening the outbreak of a nuclear war with the Soviet Union. This is probably the ultimate rationale of the Israeli bomb. In the *London Times* of 12 October 1986, Francis Perrin, high commissioner of the French atomic energy program from 1951 to 1970, attempted to explain the French understanding of the Israeli program, which France helped get off the ground: "We thought the Israeli bomb was aimed at the Americans, not to launch it against America, but to say 'if you don't want to help us in a critical situation we will require you to help us, otherwise we will use our nuclear bombs.'" One can imagine such countries as Pakistan, South Korea, or Taiwan using a similar rationale to justify a nuclear weapons program.

Nevertheless, it seems likely that just as the possession of nuclear weapons by the superpowers has made the leadership of the Soviet Union and the United States extremely careful about any military move towards the other that could result in hostilities, so will the leaders of other nuclear powers show caution. A Moslem state with nuclear weapons might offer to another Moslem state threatened by Israel's nuclear arsenal assistance in constructing its own nuclear deterrent. But it is difficult to imagine any rational government in any region of the world launching a nuclear attack that could result in a nuclear response.

The biggest danger in a world of more nuclear powers is the tight way in which the world's security is now linked. In a bipolar world, every piece of real estate becomes "strategic" because of the global cold-war struggle. If, as seems likely, there is an increase in the number of nuclear powers in the world, it may be necessary to end the logic that has driven countries like France and Israel to go nuclear – namely, that by initiating a nuclear strike or threatening to initiate one they can draw in one of the superpowers to their defence. In a world of much greater nuclear proliferation, in other words, it becomes more urgent to find ways to delink the security of states in conflict from the security of the rest of the international community. Alternatively, the world, and the superpowers in particular, must take much more seriously the task of reducing nuclear arsenals, including their own. In addition, they must develop a new system of international security that does not rest so predominantly on the nuclear deterrent. This alternative approach may seem utopian and probably is. Nevertheless, it would lead to a safer world than one of heavily armed and more numerous nuclear powers.

In short, major developments in the field of military technology and acquisition are taking place. None offers to revolutionize the international system the way the machine gun or the atomic bomb revolutionized that system, bestowing enormous power on a few at the expense of many. Rather, the trend is towards a great spread of military power and an increased need to prevent crises in one area of the world from leading to conflict there and elsewhere.

Non-military Developments

Are there other developments on the horizon that are likely to change the nature of the international system as we now know it? Three should be considered.

One is the change in the U.S. role internationally. For a considerable period after World War II, the United States was regarded as the cultural, financial, and military capital of the world. Such a surplus of power in one country has been rare in recent history. While Great Britain was the financial capital of the world and its premier naval power, it could not compete alone against Germany as a military power on land. And France, or for that matter the Soviet Union, was probably at least as great a cultural capital of the world as either of its major European competitors.

For most of the postwar period, however, the United States has been the world's primary source of capital and security. In addition, American society was the model that the rest of the world emulated. That pattern is now shifting.

The financial capital of the world is moving to Tokyo because Japan's propensity to save is so much greater than that of any other major power. The United States has become the world's largest debtor nation; and Japan has become the main capital-exporting country in the world, sending $19 billion to the outside world in 1987. Militarily, the United States is still the main source of security for the non-communist world, but here as well, America's relative advantage has receded for reasons already discussed. In 1950, the United States accounted for 50 per cent of the world's military expenditures. Twenty-five years later, it accounted for only 25 per cent. The Soviet Union has acquired nuclear parity, and conventional military technology is widely spread.

As a societal model for others, the United States remains strong but again less pre-eminent than it was before. The racial troubles of the 1960s, the foreign policy difficulties of the 1970s, and the social strains of the 1980s in the form of drugs and crime have tarnished the American image. It seems incontestable that America's ideological attraction has lost strength since the high point of the postwar period, Reagan Administration rhetoric notwithstanding. This is not to say that America has become just another great power. It retains enormous influence and potential but, increasingly, to attain its objectives internationally, it will have to work more closely with others.

Another basic change altering the international system as we have known it in the postwar period is the world economy's steady shift away from a resource base to a knowledge base. This has profound implications for the balance of power and distribution of prosperity internationally. Prior to World War II, the great nations had to worry greatly about access to resources. Indeed, the proximate cause of the World-War-II conflict between Japan and the United States was Japan's fear that through the economic sanctions America had imposed (in response, it must be underscored, to Japanese aggression), the U.S. government was trying to deny Japan the resources it needed in order to make its way in the world.

But plastics are replacing steel, fibre optics copper, and synthetics natural rubber. More important, in a respect not always understood, the oil crisis revealed a change in resource access that has been misunderstood. The immediate reaction to the oil crisis was a revival of the same kinds of fears that motivated the Japanese in 1941. But it is now understood that OPEC was not able to embargo oil even if it could influence the price. This is a big change from earlier days when a physical embargo did seem possible for several key products. Indeed, so long as colonialism reigned in most of the Third World, the various great powers had to be especially concerned about access to resources because their rivals owned huge pieces of real estate throughout the world and, if the vital minerals happened to turn up in several corners of the British empire, then it was at least conceivable that Britain could gain a choke hold over its rival's economic development.

With the proliferation of sovereign states in the postwar era, commercially important countries find that there are many sources of supply that are not controlled by their rivals. They therefore do not have to worry about this problem as much as they historically have. Of course, oil has seemed the great exception since over 40 per cent of the world's exported oil comes from the Persian Gulf area. Fifty-six per cent of the world's oil reserves lie in that area. But in all of the oil-producing states but a few, there is a desperate need for the revenues from the oil to maintain social peace at home. Even Saudi Arabia is short of cash now that the price of a barrel of oil has fallen below $20. OPEC members are incapable of enforcing a true boycott of a commodity that is difficult to trace once it enters international markets. And the Arabs themselves may be reluctant to repeat the history of the 1970s because of the degree of conservation and alternative sourcing that it encouraged.

Of course, this picture could change if the United States and other western countries follow foolish energy policies in the next decade. During the Reagan Administration, the United States has indeed embarked upon such a self-defeating course, but it seems unlikely that future administrations will express such blind devotion to market forces. And even if OPEC countries do regain greater control of the international oil market in the 1990s, it seems unlikely that western countries will panic to the same degree they did in the 1970s. They will understand that while the price may go up, the supply is unlikely to be cut off. That awareness alone will tamp down price rises.

Many of the developments mentioned will increase the leverage of the rich over the poor. But there is a third trend that may end the relative lack of concern that the rich of the North now display for the poor of the South. Thus the coming years are likely to see enormous population pressure on the North coming from the South. It is expected that the Hispanic population of the United States, now 8 per cent, will approach 10 per cent of the population by the year 2000. The French government does not distinguish among Frenchmen according to ethnic origin, but a growing percentage of the French population is now of Arab descent. The coloured population of Britain is now nearly 5 per cent. Although there is a strong reaction in many of the industrialized countries to this degree of immigration from the South, over the longer run it is likely to continue to grow. Mexico alone will face the need to provide jobs for 1 million new job entrants annually for the next 15 years. This is many more jobs than Mexico was able to create when it had real growth rates of 6 per cent or more per year. Now with low or negative growth rates, Mexico offers these young men and women no future unless they move to the North.

Meanwhile, there is a worldwide tendency for ethnic groups inside all societies to fight for a greater sense of cultural identity and political influence. This will happen in Great Britain with the blacks, in France with the Arabs, and in West Germany with the Turks. The Jesse Jackson phenomenon in the United States is a sign of the future, not just for the United States. The black community in the United States is finally asserting its political presence in American politics. Jackson's message was designed to appeal on class lines to both white and black Americans, and he succeeded in both communities to an astonishing degree. Nevertheless, the overwhelming black support for Jackson reflected not just his message but his origins – a black running for president. The power that this new force in American politics represents will require an adjustment in the way the United States looks at the rest of the world. In particular, American foreign policy will slowly begin to acquire a greater interest in some of the problems that Jackson has introduced into the political debate – the fate of southern Africa, the common destiny of the First and Third Worlds, the goal of disarmament over arms control, and a greater concern for the fate of the Palestinians. Already U.S. policy towards South Africa has undergone a dramatic change. And the Democratic Party at the state level in seven different states has endorsed the concept of self-determination for the Palestinians living in the West Bank and the Gaza. Together these are indications of a new force in American foreign policy – a force that will grow in influence. But the political role of racial minorities in other western states will also grow.

Ethnic upheavals in the other major powers – the Armenian protests in the Soviet Union and the Tibetan unrest in China – will have dissimilar but not unrelated consequences. In the Soviet Union and China, because it is increasingly difficult in terms of international image and domestic peace simply to crush an uprising without mercy, it is probable that the leadership in both countries will have to devote more economic resources and political energy to domestic matters, leaving them with less of each to devote to international questions, at least in the near term. The Soviet leadership, as it seeks greater consent from the governed, may have to take into account more sensitively the views of Soviet citizens about international problems. Do we know why the Soviet Union is seeking a more normal relationship with Israel? We assume the reasons are only international, but a need to seek a *modus vivendi* with the Soviet Jewish community might also be a reason.

The Decline of Deference

These developments raise a separate issue relevant to the evolution of the international system – the role of deference in the maintenance of order, domestic or international. All societies and indeed all international regimes require a certain measure of deference to thrive. Otherwise policemen must be stationed at every street corner to compel obedience. The question is why deference develops.

In past centuries it developed because the ordinary citizen could not imagine any other response. The king's rule was considered divine. And when the inhabitants of a territory did not show the necessary degree of deference, the king could be totally ruthless in his reaction.

Because of deference, the British could rule half the globe with only 100,000 of their own troops. Whenever a colonial figure failed to show deference, British authorities moved quickly to punish him. The machine gun was always there, if necessary, to snuff out more widespread rebellion. The white supremacy that reigned in the American South for many decades after the civil war also rested on deference. Whenever blacks failed to show the proper degree of respect towards authority, the white-sheeted riders of the Ku Klux Klan immediately mounted up.

There are recent examples. For years the Israelis controlled the West Bank with weekend soldiers. No longer is this possible. The Israeli army is now trying to reestablish deference – in the words of Prime Minister Yitzhak Shamir to put the "fear of death" back into the minds of the Palestinians – through its brutal tactics of shootings and beatings in the occupied territories. Central America and Eastern Europe are now in ferment because many individuals living there have decided that they will no longer be afraid of their authorities or army.

Some governments are willing to go much further than others to compel deference from their citizens or subjects. In Central America and Eastern Europe governments have at times in effect suspended the rule of law completely in an effort to make the average citizen once again afraid. That has been the purpose of officially inspired death squads or officially supported show trials. The Iraqi government has even used chemical weapons against the defiant Kurds.

This discussion of deference is not an idle exercise in theorizing. After World War II, both of the superpowers enjoyed considerable deference from others, particularly those located in their clearly established spheres of influence. The source of deference they enjoyed was twofold. Each superpower enjoyed enormous political prestige after the victory over Nazism. Both had enormous military power.

But the immediate postwar position of each superpower cannot be explained solely by fear on the part of others that the Americans or Soviets would attack. Each superpower benefited from the support of millions who thought that for all of their faults, these two superpowers represented two great, if rival, visions of political and social organization. America, in particular, benefited from a deference that rested primarily on respect for the American model, not fear of the American army. But even the Soviet Union enjoyed, for a period, respect in the areas where its influence was dominant. Westerners are so used to denouncing the corruptive contemporary opportunism of communist figures in

Eastern Europe that they lose sight of the great emotional power and political promise communism seemed to hold for many East Europeans, particularly the intellectual elite, after 1945, when the memory of the disasters into which the previous political order had led ordinary people was still so strong. Today, it is fair to say that few in Eastern Europe believe in the official order, although they may still be influenced by the socialist ideal. But that was not true in 1945. Millions believed that for all of its harsh costs a socialist order for Eastern Europe was the only solution.

So long as such attitudes were current, it was easier for the Soviet Union to rule Eastern Europe. The Soviets could rely on allies at the local level to enforce the socialist order as defined by Moscow. From the Soviet point of view, it is much better to have Eastern European governments crush popular dissent than it is to send in the Red Army. And even when it is necessary to send in the Red Army, it is easier to do this if one is sure the local government will not order its army to fight.

Increasingly, it is clear that Eastern European peoples are no longer as deferential as they once were. Even those in power no longer have the certainty of the earlier faith. They are afraid of their own populations, which have drifted further and further away from the beliefs of an earlier period. Worse from a Soviet point of view, it is clear that the armies in several Eastern European countries might actually receive orders to resist a Soviet invasion.

These trends will continue through the remaining years of this century. Eastern Europe will achieve a greater and greater degree of independence vis-à-vis the Soviet Union. Although the Soviet Union will not allow Eastern Europe to leave its security sphere without the establishment of a new security order in Europe, a number of Eastern European countries will evolve in a direction that will make them more like Poland today than like the people's democracies of the 1950s.

A similar phenomenon is taking place inside the American sphere of influence. In 1954, the United States succeeded in overthrowing the elected government of Guatemala through a covert operation involving a handful of people and a couple of tendentious radio broadcasts. Today, the United States finds it difficult to change the government of Panama, a country in which American economic influence is enormous and in which the United States maintains thousands of troops in a special zone completely controlled by the United States.

The Arias plan to settle the civil war in several of the Central American states is another sign that the earlier degree of deference towards the United States has declined. The Latin Americans decided to take matters into their own hands and to try to find a solution to their conflicts by acting without the cooperation of the United States. The Latin American countries are now planning a similar intervention to defuse the crisis in Panama that has developed as a result of U.S. efforts to drive General Manuel Noriega from power.

These trends will continue. Latin American countries will gain an ever-growing margin of manoeuvre internationally. The United States will find it difficult to resist this trend. The American people do not want to pay the cost of reversing this latest historical tide, and indeed the benefits that the country would derive seem in no way to justify the rivers of blood that would flow.

Elsewhere in the world similar tendencies will develop. The power of hegemonic countries will decline overall. The use of force by major countries will decline, whereas its use by smaller countries may increase. The rich will have fewer resources to buy compliance and the poor will have a stronger voice of their own.

Regrettably, these trends do not necessarily mean that less blood will flow. The decline in hegemony in some areas of the world may ignite bitter local wars. But the restraints of the international system will loosen in any event. The centre will have less and less control at the margins of international society.

Democratization and Literacy

The decline in deference, or rather the demand that authorities earn it, will contribute to a growing democratization of diplomacy among and within major states. At least in western states, citizens will not only insist that wars be waged according to higher standards of behaviour, but they will also begin to question more searchingly the very utility of war. In the 1990s, it will become more and more difficult for western government officials to order a course of action that may result in a large number of casualties. The citizens of a democratic nation will die for a great cause but, increasingly, they will refuse to die for a small one. At least they will not die in large numbers for such causes. The invasion of Grenada and the Falklands War mark the end of an era. They do not show that the old order's will to fight still survives but rather how diminished it is: the prey must be very small and the risks of a larger war almost nonexistent before even the very strong will strike.

One does not want to be pollyannish. The world could still experience the evil of a great war. But at some primitive level, citizens of major states seem to understand that the nature of international competition is changing. Japan has proven that resources or living space are less important to national development in the age of computers and fibre optics than they used to be in the age of iron and steel. In the past, greatness lay with the state that could amass and mobilize large numbers of people and large quantities of resources. The techniques of production were known. What was necessary was to find ways to drive people from the farms into the factories where they could be harnessed to the demands of the modern production cycle. In the future, greatness may lie with states that encourage adaptability and innovation. The world may pass from the age of regimentation, which lasted from 1850 to the late 1960s, to an age of more personal growth, more local initiative, but less policy coherence or centralized governance. It is an age that may already be upon us. Very different political attitudes seem likely to develop as a result.

Perhaps no force will transform the politics of all nations as much as the growing degree of literacy in the world. Many of us fail to recognize the enormous political impact that literacy has already had. In the United States, it helps to explain the civil rights revolution. In 1940, only 11.6 per cent of black adults between the ages of 25 and 29 had finished four years of high school or more. By 1970 that figure was 55.4 per cent. Moreover, blacks increasingly congregated in America's great cities where ideas flow back and forth more easily than in the countryside. From this politically fertile urban soil came the chief commanders of Martin Luther King's civil rights army.

Look at another country with entirely different political traditions. In 1987, 245 million people, or 89 per cent of the Soviet population over 10 years of age, had at least a tenth grade education. The comparable figure in 1939 was 10 per cent and even in 1959 was only 39 per cent. During this period, the Soviet Union became heavily urbanized. Still a rural society when Stalin died, the Soviet Union is now almost as urbanized as the United States [Frederick Starr, 1988].

Or, there is the case of Central America. There, between 1960 and 1976 the literacy rate rose from 44 to 72 per cent [Leiken, 1984]. During the same period, peasants were drawn into the cities as all of these societies became semi-urbanized. And it was in the cities that modern communications were able to spread ideas of change even more rapidly.

In the Middle East, the current thirst of the Palestinian people for education is legendary. Like the Jews historically, who have valued education because a hostile outside world could confiscate possessions but not knowledge, the Palestinians now value learning for the same reason: it cannot be taken away.

In the remaining years of this century, the combined impact of education, urbanization, and new modes of mass communications will revolutionize politics throughout the authoritarian world. This does not mean that all of the world will become democratic. But it does mean that all states will encounter a growing percentage of their population able to understand political issues and desiring to participate in political decisions. All states will find, in other words, that the number of political actors within a particular governing system will show a steady tendency to increase; and even if the state is unwilling to provide the population with democratic rights, it will be forced to take more into account the goals and aspirations of the politically conscious sectors of society which will be constantly growing in size.

The permeability of all societies to outside influence will also affect profoundly the relationship between citizen and state in all governments. The direct-dial telephone, the video cassette, the short-wave radio, and the personal computer – all are permitting an extraordinary degree of outside penetration in every political system. Today, in the United States, the local rabbi or Roman Catholic priest may know as much about the Middle East or Central America as the regional specialists in the State Department or the Central Intelligence Agency.

At various moments during the ongoing Polish crisis in Reagan's first term, policy disputes broke out in Washington over which policy option was more likely to assist the survival of political attitudes represented by the banned Solidarity labour movement. Those outside the government inclined to disagree with the Administration's recommendations had an option never available to critics of earlier administrations. They could simply dial direct to talk personally to prominent individuals in Poland and seek their opinion.

The Shah attempted to curb the influence of the Ayatollah by exiling him to France. But through cassette recordings, the Ayatollah was soon able to reach every mosque in Iran. The world experienced its first revolution by pre-recorded message.

If these trends are projected throughout the world, the results could be very different depending on the region. In areas such as Eastern Europe or East Asia, the result is likely to be in the direction of greater responsiveness on the part of governments towards the aspirations of their people. In the Middle East, these trends may lead to greater unrest and extremism; for at this point the governments seem to be more moderate than their population after the lost promise of the oil boom and the revival of religious fervour in the region. In Africa as well, these trends are likely to lead to considerable unrest. For the educated portion of the population, while getting larger, is still extremely small and those in power have guns and are determined to use them to retain control.

In democratic countries such as the United States, these trends are likely to lead to an even greater lack of cohesion in policy making. As knowledge of international affairs spreads among a population, the support of the citizenry for their country's involvement in international affairs may increase but so will their desire for participation. Future administrations in Washington may face a Hobson's choice in their efforts to gain popular support for policies. Public support is critical if the United States is to play the role in the world that its leaders wish it to play and that indeed is required if international progress is to continue. But it will be difficult to achieve the level of popular support necessary to sustain a policy without encouraging a degree of popular participation in foreign policy that makes the achievement of a "coherent" foreign policy virtually impossible. (A less-coherent foreign policy is not necessarily a less-desirable foreign policy. Many coherent foreign policies have been disastrous. But a less-coherent foreign policy will certainly be more difficult to explain to the outside world.)

Some recent statistics suggest what is taking place. Today more than 1,000 U.S. states and local governments are participating actively in the conduct of American foreign policy through such concrete actions as public education, research, actual negotiations, investing, and disinvesting. More than 900 local governments, for example, adopted resolutions in favour of a nuclear freeze in the early 1980s. More than 120 cities so vehemently protested the Reagan Administration's civil defence plans that the Administration had no alternative but to abandon them. Through their own divestment decisions, more than 70 cities and 19 states forced the U.S. Congress to adopt the first economic sanctions package against South Africa because of its apartheid policies [Shuman, 1986-87].

Nor are these trends restricted to the United States. In Great Britain, the Church of England has entered into direct negotiations with groups in the Middle East holding British and other hostages. The BBC has defied government orders by publishing information about possible police and army abuses in Northern Ireland. And the peace movement has helped to create a climate that made the INF agreement possible. In West Germany, the Social Democratic Party while out of power has negotiated arms-control proposals with the ruling party of East Germany. Such developments will increase in number in all democratic countries to the consternation of foreign ministries.

We are even beginning to see similar efforts behind the Iron Curtain. The role of the church in Poland is an extraordinary example of a private institution developing a major foreign-policy role against the wishes of state authorities. In many of the East European countries, though nowhere as actively as in Poland, the church, both Catholic and Protestant, is beginning to assert a role in foreign as well as in domestic affairs.

Private groups are also on the move. Many of the peace movements in the West have successfully established contact with forces on the other side of the political divide. To date, in Eastern Europe these forces remain small groups rather than major movements. But the fact that they even exist is extraordina

How do we see these various trends playing out politically in the various regions of the world? In two areas, the remaining years of this century are likely to see major changes – Eastern Europe and Latin America. In both areas, social and economic developments, together with the loss of deference discussed earlier, are undermining the postwar political order.

In Eastern Europe, the inability of the political order to provide an adequate standard of living for the bulk of the population is steadily destroying the political legitimacy of the postwar social contract, which, in effect, permitted the Communist Party to claim supreme power and exercise it unchallenged on the understanding that it would defend the economic interests of the country's working population. Now the party is no longer in a position to carry out its end of the bargain. How the societies of Eastern Europe adjust to this reality is critical. A country such as Poland seems to have three choices – the Soviet yoke, civil war, or political accommodation. A major task for the 1990s is to build, in Eastern Europe, a new political order that reconciles unavoidable economic realities, irrepressible nationalistic aspirations, and legitimate Soviet security concerns.

In Latin America, a comparable task awaits the international community. Latin America has changed dramatically in the last 30 years. There has been a demographic, urban, and communications revolution in the area as in much of the rest of the Third World, but most areas of Latin America started at a higher level of development. Hence the process in Latin America has gone further. As a result, the problem of government has changed – the ruling elites of the areas have not suddenly become more cruel and thus triggered revolutions in several countries. Rather they have simply become less relevant. The Somozas of Central America resemble the earlier Balkan monarchies in at least one respect: that they must go is known by everyone; what is not known is exactly what will replace them.

For historical reasons the new political order is likely to have a fairly strong anti-American cast to it. In addition, the new political order is also likely to involve a larger voice for the Latin Americans in the governance of the hemisphere. As in Eastern Europe, the task in Central and Latin America will be to build a new political order that reconciles the imperatives of economic development, national independence, and superpower security. If that cannot be done, both areas will become centres of international instability in the years to come.

Two other areas pose particularly severe security problems – Africa and the Middle East. In Africa few of the states now nominally independent are economically or politically viable. In the face of daunting development problems, their core choices boil down to two: they can become permanent international wards or they can search for ways to cooperate through regional organizations. It should be a task of the international community to encourage African states to cooperate more closely with one another in the years to come. No region of the world has a bleaker future in the remaining years of this century than Africa. For while the need in much of the rest of the world is greater decentralization and an unleashing of popular energy, in Africa, the great need remains consolidation, nation building, and the establishment of viable economic units.

The political arrangements in the Middle East are also untenable. The monarchies in the Persian Gulf are likely to go the way of the Shah before the end of the century. The Palestinians are likely to have their own state before the end of the century. Fundamentalist forces throughout the Middle East are likely to have a larger political voice by the end of this century. The Middle East has always been an area where each of the two superpowers has hesitated to accommodate the interests of the other. If this attitude continues, the dangers from instability in the Middle East could be considerable. If outside powers do attempt to accommodate one another's interests, the changes that will take place may be painful for some parties in the area but international peace need not be jeopardized.

In the Far East, the security task remaining in this century is the integration into the international political and economic order of the six communist states and two pariah powers in the area. China has already begun the transition and its passage will be difficult. Specialists at institutions like the Rand Corporation estimate that China could develop the world's second largest economy by the year 2010. Will the world economy work to make room for a Chinese giant? If it does not, China will be tempted to follow a course much like that of Japan prior to 1945. That is to say that it could work to carve out a sphere of influence of its own to ensure its economic future.

The integration of the three Indochinese powers and North Korea is more manageable economically if the political issues can be solved. But the security issues are extremely sensitive and the Far East, as Eastern Europe, remains a region of the world where miscalculations could trigger major conflicts. In Korea, the desire of national unity is intense in both the North and the South. Some way must be found to accommodate this desire without upsetting the security arrangements important to neighbouring states.

In Indochina the likelihood is that Vietnam will turn its attentions inward in an effort to solve its major economic problems. It will withdraw its troops from Kampuchea but it will remain the most important power in both Phnom Penh and Vientiane.

As Eastern Europe, the Far East will not be stable without a reasonable accommodation of Soviet interests in the area. Gorbachev has proclaimed his goal of bringing the Soviet Union to world levels of economic achievement. Necessarily, his country will have to take a greater interest in the Far East, home of the world's most dynamic economies. For some years, the Soviet Union has urged the world to consider applying to the Far East the European model of the Helsinki Accords. The response has been reserved because the Soviet proposal seemed such a transparent effort to rally others to gang up on the Chinese. But with the steady improvement in Chinese-Soviet relations, the time may be approaching to examine Soviet proposals more carefully. Certainly before the end of this century, the international community will need to develop a security order to replace the bilateral arrangements that now exist.

Finally, a task for the 1990s must be to prepare the path for an ultimate solution for the three divided countries – China, Germany, and Korea. Because their postwar division has become an accepted part of the international order, a determined drive to unite any or all of these three countries could be extremely unsettling. Moreover, because of differences in social order that have grown up during the long years of the cold war, it may be impossible to end the division of these three countries in the traditional way – with the stronger portion incorporating the weaker into its own political arrangements. It may be necessary to develop new forms of political association. What does seem clear, however, is that if the intensity of the cold war continues to recede, then the pressure to solve the problem of these three countries, artificially divided by the cold war, will increase.

The Future

What then, overall, is the future that the world faces in the 1990s? It will be a world where major wars of miscalculation could still take place but where the main threats are more likely to originate from within than from without. The temptations to initiate international wars on the scale of World War II will be fewer and the restraints will be greater. Yet this prediction should not be too reassuring. For ethnic unrest, environmental degradation, economic disorder, and social dissensus will pose grave threats to governments, threats graver than overt aggression from abroad. In such a world, governments will be judged by a new standard: the victories will be found at home more often than abroad. Governments will be judged increasingly by economic performance and domestic stability than by international theatre or diplomatic manoeuvre.

In the First World – that of the developed western states – the imperial age will finally end definitively. That age will end not because of any significant change in the Soviet challenge, although that may occur, but because of a mounting Third World capacity to resist and a mounting First World desire to disengage. Regrettably, this disengagement may have a negative side. The First World may be somewhat less inclined to press ahead with international efforts at development.

In the Second World – that of the communist states – the heroic age will come to a definitive end. The period when political leaders could sacrifice enormous numbers of people for Marx's theory of history will pass. If they wish to continue their slaughter, they will need to find a new theory. Bolsheviks will henceforth be happier to remain bureaucrats.

In the Third World – that of the bulk of mankind – the anti-colonial age will come to a definitive end. With the Westerners thrown out and a new political order established, governments will see as their main task, development at home, management of ethnic unrest, and defence against aggressive neighbours.

In this new global environment, the choices for the international community are either a program of reform to make the current institutions of international governance more effective and relevant or acceptance of a system-wide breakdown of the current international order into regional blocs. There is already some move in this last direction. The European Economic Community's ties with the African states, Japan's growing interest in Southeast Asia, and America's Caribbean Basin Initiative all betray a budding interest on the part of these three major economic power blocs in establishing a *terre privée* for themselves. Such developments are obviously preferable to anarchy. But they are not as obviously preferable to a multilateral world that is better governed than the one we have.

Yet a new opportunity to improve the institutions that exist may even be at hand. At one of the early summits, Reagan suggested to Gorbachev that if invaders from Mars ever struck the planet, both superpowers would put aside their differences to fight the common foe. Perhaps domestic difficulties in both countries as well as novel international problems like AIDS or the greenhouse effect will be the functional equivalent of the invader from Mars. If so, the pressure to cooperate will mount.

Gorbachev's September 1987 article on international institutions and his December 1988 speech before the United Nations General Assembly represent a revolutionary shift in Soviet postwar positions on the United Nations, the role of international law, and the place of international co-operation in resolving foreign policy conflicts. Although details are still lacking, the Gorbachev initiative is one of the most promising developments to take place in many years in the field.

Meanwhile, the United States has elected as president a man likely to have a much more favourable attitude towards international institutions than Ronald Reagan possessed. George Bush was one of the more effective permanent representatives the United States has assigned to the United Nations. Although an important part of his constituency is opposed to the international institutions, there is a lot of evidence to suggest that the man himself is not.

In short, while there are major new problems on the international agenda, there are also major new opportunities. The task of leadership in the 1990s is to seize them.

Commentary by John Kirton

In predicting the shape of the international political system in the year 2000, scholars of international politics begin their work with an overwhelming sense of caution. For with only the most primitive of models, an abundance of competing grand theories, an absence of intellectual consensus, and a still slender arsenal of reliable, partial findings, they have little choice but to acknowledge the large role that still unpredictable elements, from individual leadership to national revolutions, play in shaping the destiny of nations and their world. At the same time, they can bring to their task, if not an inventory of proven answers, at least a set of basic questions – a focus on those fundamental, enduring elements of world politics that have preoccupied scholars of international relations for decades and enabled them to provide increasingly precise, if still highly hazardous, predictions about the evolving international system. These elements begin with the overriding concern with the likelihood of major war and the persistence of severe inequalities in the global system. They continue with the central variables that drive to change in that system: the development of critical strategic technologies, the shifting distribution of capabilities among countries and blocs, and the domestic consensus that determines or constrains the purposes for which those capabilities will be employed. And they conclude with the ultimate normative and policy-oriented question – the way countries will come together to reshape international order – through negotiation or war.

In his assessment of these factors, William Maynes assumes that the world will escape major war and destabilizing inequalities for the next decade. He proceeds to locate the motors of change in the role of precision-guided weapons and nuclear proliferation diffusing military power; the relative decline of the United States in the economic and cultural sphere; and the rising demands of ever-more literate publics everywhere for respect of the "Nuremberg norms," fulfilment of their basic human needs, expression of their ethnic identity; and claims against authority. The resulting international order is one in which local, rather than superpower interests, predominate in Eastern Europe, Latin America, and even Asia, while the Middle East and Africa remain embroiled in political turmoil. The analysis ends with an optimistic prediction of a "new age for international institutions" as both superpowers simultaneously discover the virtues of the United Nations.

This conclusion points to the critical question of how the major powers in the system will act to reshape the inherited international order to take account of the profound changes in international technology, national capabilities, and individual expectations currently under way. But to find the answer in a reaffirmation of the old internationalism centred on the United Nations and the two superpowers is to underestimate the profound changes and challenges that await the world in the decade ahead. Indeed, a recipe based on a return to the ossified international structures founded on deals now almost half a century old, led by the declining duopolists who designed the edifice in their image and then nearly destroyed it, is profoundly inadequate as a way of coping with the crises of war and inequality which await us on the road to the year 2000, let alone as an architecture for the international order we want when we arrive.

Despite its recent public relations success at the end of the Iran-Iraq war, and its historic if still troubled achievement of the Law of the Sea Treaty, the U.N. system and the broad pattern of universalism and egalitarianism it encourages will remain largely irrelevant as a force for reshaping the security regimes in the all major global regions, just as it has had a secondary role in the major achievements in international order building of the past two decades. It has had and will have relatively little to do in creating or controlling the most revolutionary technologies of the post-World War II international system – those which enable countries to operate in outer space. It has been, by design, a striking failure in integrating into the senior management of international order those emerging powers (notably Japan, West Germany, Italy, and even India) whose resources will be required if the system is to survive to the year 2000. And compared to institutions such as Amnesty International or Greenpeace, or events such as international rock concerts and acts of terrorism against civilian airliners, it has done little to create, as opposed to codify, the processes of domestic, democratic, and cosmopolitan consciousness raising now under way. Indeed, the old internationalism centred in the United Nations and its Atlantic Alliance, and Warsaw Pact supplements is likely to be superseded over the next decade by the new internationalism of a concert of western great powers, with new links to the countries of the West, East, and North, as the core of a more stable, equitable, and effective system of international order.

War and Inequality in the World of the 1990s

In sharp contrast to the 1970s, which opened with the war in Vietnam, continued with the Middle East War of 1973, and concluded with the Soviet invasion of Afghanistan, the 1980s have seen little military action and protracted conflict that involve one of the superpowers, threaten to pull in the other, and thus potentially imperil the system as a whole. Despite the return of the rhetorical cold war in the early 1980s, the use of force in Lebanon, Grenada, and the

Falklands, and the Iran-Iraq and Cambodian wars, the decade brought hope that the spectre of system-wide war, perhaps for the first time in the postwar period, was in permanent retreat.

Such impressions are sustained by the evidence on the incidence of a major power war. Although the severity of war has steadily increased over the centuries, and while the number of countries to create and conduct these wars has proliferated in the past 50 years, there has been a steady reduction in the outbreak of international war [Levy, 1983]. For the 44 years following 1945, there has not been a single war fought directly between the great powers; a record never before obtained in the post-Westphalian system and one likely to endure, conclude scholars from a variety of interpretive traditions, to the year 2000 [Holsti, 1986; Modelski, 1987]. Within the Euro-centric system of the West – the incubator of most of the system-wide wars of the last few centuries – there now exists a permanent peace, most notably between France and West Germany, that the odd quarrels between Greece and Turkey are most unlikely to upset. And increasingly, if irregularly, the two superpowers have learned to cooperate to control the military competition, not only between themselves (through arms control and crisis management mechanisms) but also in those areas of the Third World which might feed back into and endanger the central core.

These positive prospects for peace in the international system are, however, accompanied by pervasive and seemingly permanent poverty in large parts of the globe. Here, the decade of the 1980s has brought a sharp break, rather than an intensifying continuity with the trends of the past. It is true that, on the whole, there has been considerable progress over the three decades from 1950 to 1980 in raising per-capita growth rates and per-capita consumption in the Third World, particularly in East Asia and the Pacific, Latin America and the Caribbean, and the Middle East and North Africa [Holsti, 1986]. It is also true that some small class of states – the four tigers of Asia, followed by the newly industrializing countries, and the newly exporting countries in their wake – has shown steady and swift progress towards the threshold of affluence. But the long decline in oil and commodity prices in the early 1980s, the rise of massive Third World debt, and the effective death of any serious comprehensive North-South dialogue has left many countries and people much worse off and, more importantly, destroyed the bargaining power they need to have any hope of making things better. Those still optimistic about the U.N. system should consider its dismal record in keeping alive the North-South dialogue of the 1970s and its failure to save sub-Saharan Africa from its steady slide into stagnation. And those seeking solutions to the crises of Third World debt, development and famine, and searching for the sources of capital required to make genuine progress, will have to look well beyond the dwindling aid programs of relatively less liquid and more aid-weary superpowers, and more to the challenge of mobilizing and organizing the money and sense of mission of the Japanese, the Germans, the Italians, and even the Canadians of the world.

The New Technologies and Their Management

As positive as the prospects for peace are, there remains the danger that the ever-more sophisticated and proliferating weapons technologies of the modern age will produce changes in relative national capability, increase the security dilemma for the states and the instability of the system, render unwanted war more likely, and impose decisive destruction should it occur. In considering which weapons technologies are likely to be most collectively threatening, scholars of international politics have focused on four fundamental trends in the post-World War II world: nuclear proliferation, the advent of precision-guided munitions, the ballistic missile technologies that produced the space age, and the observation technologies that produced the "reconnaissance revolution," and with it the possibility of permanent strategic stability and meaningful arms control [Gaddis, 1986].

Against the threat of nuclear proliferation, the post-World War II world has coped rather well. The club of nuclear powers (which began with the United States, the Soviet Union, and the United Kingdom, and expanded to include China in 1960, France in 1964, and India in 1974) has been expanding at an ever-slower rate and may, in fact, now be permanently frozen at six. This last success in particular is due not to the United Nations, whose Non-Proliferation Treaty and International Atomic Energy Agency failed to prevent the Indian nuclear explosion of 1974, but to the concerted efforts of members of the London Suppliers Group, formed by the major powers of the West and the Soviet Union in the mid-1970s to prevent a further expansion in the size of the nuclear club. They have done so with demonstrable success for the past decade and a half, through the darkest days of the new cold war, as well as during the ensuing superpower *détente*. At the same time, the 1980s have seen such major nuclear claimants of the 1970s as Argentina, Brazil, and South Korea shift sharply away from the nuclear option, and the major rising powers of Japan, West Germany, and Italy resolutely remain, along with Canada, charter members of the nuclear weapons-capable renunciation club.

At much lower levels of the nuclear spectrum there remains the potential problem of countries with covert nuclear weapons capabilities or programs, the so-called bombs-in-the-basement club created by Israel over a decade ago. The fact that these weapons remain in the cellar shows the strength of the international regime against nuclear weaponization and reduces to some extent the confidence their owners can have in the reliability and precision of their systems. Countries such as Pakistan, which are potentially able to use such weapons against other countries, as opposed to threats from within their own territory (of the sort the Israelis and South Africans face), have already shown a steadily lessening appetite for this capability and for incurring the international risks that ever-better detection systems impose. For the remainder of the century, the horizontal nuclear proliferation threat is likely to be reduced from being a normal process of international relations to the status of a crime against the international order, akin to the place of terrorism, aircraft hijacking, and assaults on diplomats and their missions. It is thus well within the capacity of the world's major powers to control, through defensive technologies to protect themselves, unilateral military action to destroy emerging capabilities, or concerted action to make the costs of going nuclear on the cheap unacceptable.

As important and visible as the nuclear weapons threat has been, it is but one dimension of the technological mix that drives the delicate race between stabilizing and destabilizing national security hardware. They acquire their significance primarily as part of a package of ballistic, guidance, sensor, and payload technologies that come together, either on or slightly above the ground, in the form of precision-guided munitions, or high above the earth, in military and civilian realms alike, in the critical domain of outer space. As theorists of long cycles in international politics properly emphasize, the naval and air technologies that gave leading powers their dominance on a global scale over the past millennium are now being surpassed by the space technologies that perform similar functions with much enhanced effectiveness, on a far greater scale [Modelski, 1987]. Indeed, in the military realm, what transformed the strategic situation and provided the symbols of superpowerhood, in the post-World War II era, was less the development of a particular payload (atomic or hydrogen warheads), however destructive, than the ballistic technologies (solid fuelled intercontinental rockets) on which they rode, the electronic technologies (inertial guidance) that steered them, and the observation technologies (most recently in cruise missiles) that told them where their targets were. Together they unleashed a race, which will intensify throughout the 1990s, between strategic instability and effective arms control.

There are good grounds, however, for predicting that the same processes that have produced effective controls on horizontal proliferation in the most destructive (nuclear) warheads will enjoy similar success with regards to the most destructive and destabilizing delivery systems – long-range ballistic missiles. The spread of such systems has proceeded in a remarkably similar pattern, if at a slower pace, than nuclear warheads with Israel, the eighth member of the club only joining in 1988. Unlike nuclear warheads, long-range ballistic missile capability (or launch capabilities more generally) cannot be possessed covertly, for the hazards of launch demand that they be flight tested, and against such air and space transiting creatures detection and verification technology is at its best. Here an effective arms-control regime is already in place, again on the foundations of an emerging great power concert rather than the forums of the United Nations, as the countries of the seven-power summit combined in 1987 to produce a regime against the spread of ballistic missile technologies to those many countries still without such a capability.

Moving closer to earth and into the realm of guidance technologies, one can find lower-level threats. In the 1990s, strategic instability will be fuelled in part by the proliferation of active arsenals of cruise missiles – bearing new targeting technologies, longer ranges, faster speeds, more platform types (in land, sea, and air), and more country owners. These are the precision-guided munitions which count, especially as they become married with the new stealth technologies that render more difficult the task of verification and with it the challenge of an effective arms-control regime.

By far the largest destabilizing force, however, will be the fruits of the Strategic Defence Initiative (SDI). At a minimum, the 1990s will see an intensifying SDI science (and probably technology) race between the two superpowers. As current R&D programs reach maturity and both superpowers face difficult decisions about developing and deploying component systems, uncertainty and suspicion will proliferate and a major arms-control challenge arise. While no country (or region) will ever see its protective astrodome (and the restoration of superpower dominance that would come with it), the stabilizing uses of SDI – to protect Command, Control, Communication and Intelligence (C^3I), vulnerable parts of the strategic triad, and even populations against pariah states with both nuclear warheads and long-range ballistic missiles – will drive component deployments onward. Moreover, the application of at least a few of the new SDI-generated or -improved warhead technologies (laser, railgun, and particle beam) to existing weapons systems will probably begin. Even as cruise missile proliferation diffuses military power from the two superpowers to the handful of military great powers (but not beyond), the limited forms of SDI will work to reconcentrate it in the two.

Another development in military technology, and one with a similarly destabilizing and potentially reconcentrating effect, is the weaponization of space. This process, on which SDI depends and which many existing military services (notably air and sea) consider desirable, has already been launched by the failure of the international community to generate a ban on anti-satellite weapons (ASATs), in high or in low orbits [Stares, 1987]. As the two superpowers continue to pioneer their (space and ground-based) satellite killers, they threaten the space-based (and air, ground, and sea) assets of any great power competitors and of each other. In doing so, they fundamentally put at risk the technological infrastructure of strategic stability (Observation, Communication, C^3I, and hot-line systems) and increase the chances of accidents in increasingly much more tightly wired strategic systems.

Will the process of arms control be equal to the task? Can it control the process of the new cruise missile, SDI, and spacekiller technologies in ways that enhance strategic stability? There is a reasonable chance. The postwar process of arms control, made possible by the space-based "reconnaissance revolution" of the early 1960s has, despite periodic pauses, proliferated over the past three decades, as ever-improving space observations and communication-intercept technologies have provided the required levels of verification. Even should the on-site verification breakthrough of Intermediate Nuclear Forces (INF) not be extended, space verification technologies will permit strong strategic arms reduction talks (START and even START 2) agreement, while the distaste of both superpowers for budgeting and basing successor land-based systems demands such a response. The same combination (aided by falling birth rates and the unpopularity of conscription) should bring major agreements on conventional arms control, beginning in the crowded interior of continental Europe. What remains more problematic is the use of Short-Range Nuclear Forces (SNF) arms control, for it is in this domain that the five-power problem, and issues of extended deterrence, are most acute.

The Demise of Imperial America and Isolationist Russia

In this intensified race between strategic instability and arms control, the balance will be swung in favour of the latter by the most profound force in the international system of the post-World War II half century – the demise of the United States as a system-dominant actor and the resulting emergence of the Soviet Union as a more responsible, internationally engaged force in world affairs. Despite the vibrant debate about the precise dimensions, duration, and direction of America's post-World War II hegemony, the broad trends are strikingly clear [Kennedy, 1987; Huntington, 1988; Doran and Parsons, 1980].

During the immediate postwar decade, the United States exercised an unprecedented dominance in the comprehensiveness and degree of its lead. By itself, it accounted for over one half of the world's GNP and financial reserves, but also of its oil and gas production, largest corporations, official development assistance, and technology. Into the mid-1960s, it had an equally commanding lead in the military hardware of naval, air, and space power and the political software of social cohesion and internationally attractive distinctive national values (through its civil rights movement and construction of a great society).

Unprecedented dominance has now bred unprecedented decline, to the point where the United States is now merely the first or second among equals in virtually all relevant realms. Nor has the Reagan revolution succeeded in replicating the United Kingdom's previous feat of producing a hegemonic restoration and a second golden age. By the traditional calculus of national power, Reagan's America, led by its rearmament program, did bring about a temporary reversal in the U.S. long-term slide within the West. But it failed to inhibit the rapid rise of the Japanese on these fundamentals, or even decisively defeat the Soviets and Chinese. It came, quite directly, at the cost of America's economic strength and capacity for renewal. And as evidenced by the U.S. space program (the leading future-oriented indicator of relative national capability), it did nothing to stop the general decline in America's technological lead.

Over the past half millennium, declines of this sort have reliably generated increasing international instability and system-wide war. This time, however, three trends suggest the results will be different and that the United States (and the system) will experience a remarkably soft landing indeed. The first is the *de facto* American strategy of adjusting to decline. Here it shows strong signs of adopting the North American approach to national capability enhancement (successfully pioneered by Canada in the postwar period) – major decreases in military expenditures and mobilization, and essentially unrestricted inflows of massive amounts of direct foreign investment. The second is the spread of relative national capabilities in the world from the United States to, not a broadly diffused set of very different powers, but a small group of successors largely on the U.S.

side. Despite Soviet claims in the military field, China's in population and Japan's in economic and technological domains, there is no single successor-dominant state. In place of the challenge of a single rival or the incoherence of broadly diffused power, there is a compact group of major industrial democracies (Japan, West Germany, France, Britain, Italy, and even Canada), each with their own distinctive relationships to America's former great rivals (China and the Soviet Union) or major sources of potential instability in the world (Eastern Europe, Middle East, and Africa). And third, the steadily increasing internationalization of the U.S. economy, and society, is rendering ever-more unlikely that great nightmare of America's ranking global associates – the retreat of the United States into its classic isolationism, unilateralism, and protectionism.

At the same time, similar forces of relative decline in the Soviet Union are leading to the historic transformation of that country from an autarkic, isolationist, defensive power of primarily European dimensions, to an internationally oriented country anxious to become involved in the international system, in a responsible manner, on a global scale. Here the animating force is not Gorbachev, however appealing and astute he may be as a leader, but Gorbachevism – the now middle-aged Soviet elites who value material prosperity and intellectual expression, who have confined the military threat to the Soviet Union to distant World War II and cold war memories, and who will sustain any Soviet leadership willing and able to reorient the country to producing the new priorities rather than the old. It is more difficult to predict their reaction and that of their leaders to those within the Soviet Union who are driven by the demands – of nationalism, identity, and religion – of a previous age. But beyond Soviet borders, the diminishing sense of international threat and the great magnetic attraction of material prosperity emanating from the powerhouse of a European Economic Community embarked on its move to and beyond 1992 will make it much easier for the Soviet Union to relax its grip to an ever-greater degree. The new challenge in the 1990s, to the Americans, Soviets, and Europeans alike, might thus well be a very old one – how to cope politically with the enormous power of a culturally united German people.

The Internationalization of Domestic Debates

The assault on the inherited political architecture of sovereign states, imposed borders, and well-defined spheres of influence (nowhere more precisely embodied than in Berlin) will be powerfully assisted by those forces in international politics which are mobilizing publics around the world into active participants in the foreign policy process on a global scale. Here too space technology has made a major contribution, as advances in camera miniaturization, satellite transmission, and direct broadcast satellites through the medium of television news and public affairs programs, vastly extend the power of those domestic level events which affront the growing cosmopolitan consciousness and conscience of citizens, at least in the more affluent areas of the globe.

The key here is the unique capacity of television to provide saturation coverage of dramatic events, and to do so with the particular emotion and intimacy that engender political mobilization [Page, et al., 1987]. International affairs, with their wars, natural disasters, and famines, have long had a comparative advantage over domestic affairs in generating televisable coverage. The new technologies make it vastly easier for television – even local stations in North America – to get those stories on air. They thus give international affairs a primacy in the domestic political process, and the public, a determining voice in their resolution. While the defeat of the Carter presidency may have been catalyzed by the nationalist/fundamentalist revolution in Iran, it was the electronic water-torture of the American networks highlighting the issue on a daily basis and the skillful use of the Iranians in using television that gave the seizure of a few diplomats in distant Teheran (not too unlike the experience of Britain during the Chinese cultural revolution) its real political force in the United States. There also is a significant difference in the political response to wars and military interventions that were readily and heavily televised (Vietnam, Lebanon, 1982; and Lebanon, 1983), and those that were not (Grenada, Afghanistan, and the Falklands). And while governments will retain their control over the airwaves, the 1990s will see the privatization, and hence democratization, of the required observation and transmission satellites, and perhaps even the launch vehicles and facilities to put them up. The role of the French *Satellite pour l'observation pour la terre* (*SPOT*) in providing the first pictures of the new Soviet aircraft carrier, the Soviet space shuttle, and the Chernobyl explosion, signals the day when each respectable television network will have access to its own spy-in-the-sky mediasat. In the meantime, in the United States, both Watergate and Irangate have demystified and opened up the foreign policymaking process to the public with an intimacy likely to have lasting effects on the willingness of citizens to trust the national security experts in government to make wise decisions in private.

The internationalization of television will also expand the cosmopolitan consciousness that is slowly emerging in and outward from the western world. It is already in the process of publicizing or deprivatizing death – transforming the mass termination of human life, whether from armed conflict (Lebanon, 1982), forced expulsion (the Vietnamese boat people), famine (Ethiopia and Sudan), floods (Bangladesh), earthquakes (Mexico City), or hurricanes (Jamaica), into a public affair, engendering an immediate response from fellow citizens of the global community, irrespective of national boundaries. It is the export of desperation from the Third World through the medium of television, as well as migration, that will generate a common psychological bond and a fragmentary but steadily strengthening sense of political responsibility between citizens of the North and the South.

Another product of the space-television age that will become a core part of this emerging cosmopolitan consciousness is the environmental revolution. As a mass movement with political force, environmentalism in the western world dates only from the late 1960s when the Apollo program generated those hauntingly evocative pictures of a vibrant but fragile blue-green planet against the life-destroying blackness of space. It showed hundreds of millions of viewers around the world that in the cosmos, we are truly alone together. Together, observation satellites (as at Chernobyl), earth-resource sensing satellites (mapping the deforestation of the tropics), and scientific satellites (verifying the missing ozone layer over the poles) will increasingly convey the mass public consciousness and citizen mobilization that professional scientists and far-sighted politicians (often from small countries) need to produce political results.

Finally, through the proliferation of Direct Broadcast Satellites and miniature receiving antennae, the 1990s will see a vastly expanded array of international television networks available to citizens in all countries, as all countries come to enjoy the electronic cornucopia of Belgium today. There are no technical reasons and only minor economic ones why the Second and Third World will not participate in this trend as they did in the radio revolution of a previous era. This internationalization of television will erode ethnocentric interpretations of foreign policy and make it more difficult for national governments to control the agendas, frames of reference, and thus policy of their own citizens. At the same time, it will give ethnic and linguistic minorities powerful new tools to reinforce their common cultural nationalism. Here, it is worth recalling that the availability of West German television in East Germany has done much to keep alive the unity of the single German nation. As the superpower armies go home, as deference to authority dwindles, and as national identifications increase, it remains to be seen whether the 1990s can absorb the pressures towards further expressions of the desire for reunification of the German nation.

Building the New Internationalism

This reminder of the German question – the cause of so much conflict in world politics during the past century – raises fundamental questions about the construction of international order and the adequacy of the United Nations-based family of institutions for this task. Here the prospects, even with a newly engaged Soviet Union, are rather poor. The U.N. system – like the League and the Concert of Europe before it – is essentially the creation of a particular set of powers who happened to win the last war and who institutionalized their dominance by designing a system that awarded them unique privileges, that expressed their distinctive values, and that cloaked this particular historic configuration in a universalistic, permanent garb.

In 1945, the lesser allies and defeated powers had little choice but to acquiesce in a system in which the privileges went to those with the power. But it is unrealistic to expect them permanently to accept as legitimate, or even workable, a system in which the privileges of the victors endure while their power erodes. It is highly unlikely that the United Nations will ever engage in the charter reforms required to render rights and resources once again symmetrical. By the year 2000, it is conceivable that we may have a new Bretton Woods conference to redesign the international monetary system. It is certain, however, that we will not have a new San Francisco conference to remake the foundation of the overall U.N. system itself. Despite recent Soviet flirtations with the system, neither they nor their World War II American allies will ever admit to the Security Council as veto powers West Germany or Japan, no matter how much they come to contribute to the security function in Europe or Asia. It is also certain that the United States will be most reluctant to relinquish its unique veto power in the IMF – a privilege that made sense when the United States was virtually the only creditor country in the world but does not now that they have become the largest debtor. Nor can one anticipate the day when a Japanese national will replace an American as head of the World Bank, and its headquarters migrate from Washington to Tokyo. And hope for the U.S. rediscovery of the virtues of a genuinely universal United Nations should be suspended until it formally accepts the one great achievement of the institution's past quarter century, by signing the United Nations Treaty on the Law of the Sea.

Being so effectively frozen out of the command positions by the very architecture of an obsolescent universal system, West Germany, Japan, and even Italy will increasingly be forced to seek regional solutions – as the economic core of a new Europe with a privileged relationship with the Soviet bloc and Africa, as the heart of an Asian system engaged in a new accommodation with China, or as a ranking regional power with consequential views on peace in the Mediterranean and Middle East. The United States may well be left with only its Monroe Doctrine neighbours (including Canada) in a sort of grand, western hemispheric debtors club.

The one major break on this process could still come from the Atlantic family of multilateral institutions, NATO, GATT, the OECD, and the International Energy Agency (IEA). Despite well-known disadvantages (as symbolized by the American stranglehold on the position of NATO's Supreme Allied Commander Europe, and the lack of solidarity evident in the not very out-of-area Libyan raid), Atlanticism has registered some recent successes. These include America's achievement in listening to its allies in the INF negotiations, NATO's larger success in integrating Japan into a global security dialogue, and the long-awaited launch of the GATT's Uruguay Round.

The focus of future efforts at international order building, however, is likely to lie in the third generation of postwar institutions – those of the seven-power summit system, as reinforced by similar plurilateral forces, and the process of institutionalized superpower summitry that has emerged over the past three years [Putnam and Bayne, 1987]. Western publics and their media have already adapted to this transformation and legitimized it by investing their attention. Even the more uneventful seven-power summits routinely attract 3,000 to 5,000 media representatives and receive intensive coverage in most member countries. In contrast, the annual opening of the United Nations General Assembly, and the infrequent NATO heads of government meetings go largely unnoticed. During the summit system's short 14-year history, it has acquired an impressive record of achievement. It has proven itself capable of adjusting to the new power of Japan and West Germany, creating or reinforcing new institutions in the field of trade and finance, energizing and directing the older institutions (e.g., London, 1977 and the Tokyo Round), responding to crises from the "South" (Tokyo, 1979; and Toronto, 1988), embracing critical political and security issues (arms control, South Africa, and the Middle East), reaching out to cope with challenges in new areas (terrorism, drugs, and the environment), and creating regimes with teeth (aircraft hijacking). In doing so, it has survived significant shifts in prevailing ideology (the interventionist demand-management coordination of the late 1970s) to advance the process of international economic cooperation. Its remaining challenge, during the 1990s, is to transform itself from a northern plutocracy into a genuine global concert of major powers by devising mechanisms for reliably integrating the Soviet Union and China into its dialogue and more systematically incorporating the claims and contributions of the South.

3 Visions of the Global Economy to the Year 2000

Jacques Lesourne

This paper was commissioned by the Economic Council of Canada as part of its study of perspectives for the year 2000. Its specific purpose is to outline the possible economic environments that Canada might face as it enters the next century.

Before the outline of the paper is presented, some preliminary remarks are in order for clarity's sake.

1 In any long-term analysis, it is impossible to disassociate completely geopolitical and geoeconomic issues. It is obvious, for example, that the development of an integrated domestic market in Europe is essentially the economic reflection of a political vision. Similarly, the success or failure of Gorbachev's *perestroika* will have both political and economic consequences. Thus the present text, while it focuses on Canada's economic environment, will frequently refer to relevant political developments as well.

2 The future is shaped by three elements: necessity, chance, and human determination. The imperatives of necessity are dictated by long-term trends, which can only be altered by continuous effort over an extended period of time. Chance events include the appearance of great leaders and the coincidence of apparently unrelated events with synergistic consequences. The final element is the will or determination of individuals or groups within society to make their endeavours relevant to the future. Thus any forward-looking analysis must inevitably be pluralistic, examining probable trends and potential shocks, and attempting to identify the branching points where a choice between alternate futures is made largely by chance.

3 Anyone studying the global economy discovers that it is a complex and dynamic system shaped by numerous interrelated actors and variables. Understanding such a system is never an easy task, and describing its dynamics almost inevitably means adopting a piecemeal approach with the inherent danger of losing sight of the unity of the whole.

The outline of the paper reflects these preliminary remarks in part. There are five sections:

1 The first consists of a brief historical review, because any look into the future must start with an examination of the past. Indeed, speculation about the future can only be based on our knowledge of the past and the present.

2 The next step is to interpret this look at the past by identifying long-term trends and speculating about those which might endure in coming years. While providing these kinds of answers does not exhaust the range of possibilities, it does provide a framework for exploring the future shape of the global economy.

3 This task will be taken up in the third section, where four interrelated visions of the global economy will be presented, focused respectively on regions, patterns of flow, mechanisms, and actors. In the case of flow patterns, particular attention will be paid to how Canada's external trade fits into a global context.

4 It will then be possible to outline three scenarios for the beginning of the next century. These three variants do not cover all the possibilities suggested by the current situation, but they should make it possible to identify likely paths for the future and should provide a framework for the discussion in the fifth section.

5 The fifth and final section will examine some policy issues suggested by the preceding analysis, both for the Group of Seven (G-7 countries, of which Canada is a member) and for Canada itself. Reference will be made to publications specifically concerned with this country's problems.

Brief Historical Review

Two widely separated points in time will serve as starting points for this retrospective: 1950, when the immediate postwar period ended; and 1970, which marked the onset of the major shocks of the last two decades. We will move at will between these two benchmark years. The trends that have characterized the global economy during these two successive 20-year periods may be summarized in four points:

1 The year 1970 was a watershed year that marked the passing from a period of strong growth and low variability in the global economy to a period of lower growth and high variability. In the years following, by the time markets and governments had managed to respond to one change, new

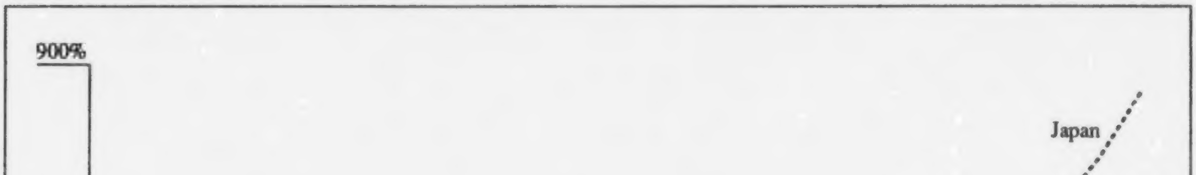
fluctuations had already been triggered in the same area or in other areas. For example, through a complex series of factors (including slower growth, energy conservation, oil substitution, and development of nuclear energy), the oil shocks of 1973 and 1979 eventually led to a countershock (oil glut) in 1986. The same shocks, accompanied by continuing high investment and consumption in the Third World, sparked the 1982 debt crisis, which is still with us today. Finally, up until 1980, the same oil shocks fed an inflationary cycle in the United States that had started with the Vietnam War and had deepened as a result of the decline in the dollar. As for macroeconomic developments in the 1980s, the facts are well known. The early part of the decade saw a rise in the dollar, brought about by the combination of a restrictive monetary policy and a permissive fiscal policy. The result was increasing U.S. imports, declining exports, a high current-account deficit, and the development of a protectionist mentality in the United States. The year 1985 ushered in a period of instability that made it inevitable that, sooner or later, the U.S. dollar would fall sharply against the Deutschemark and the yen. The final chapter of this story has yet to be written, because the growth of the U.S. current-account deficit has barely begun to slow down. . . .

This review of events raises an important question for future consideration: Are these fluctuations, which are characterized by their domino effects and by lagged responses on the part of governments and markets, the result of random factors or, instead, of the way the global economy is managed? We will put off consideration of this question until the second section of this paper.

2 The early 1970s were also a time of change in the level and ranking of growth rates in various areas of the world. Between 1950 and 1973, Japan's growth rate outstripped

Chart 3-1

Growth Rates of the Major Industrialized Nations, 1950-73



those of West Germany and Canada, which in turn stood just above the U.S. rate (Chart 3-1). During this period, GDP growth rates for France and Canada were practically identical. As of 1973, however, this pattern changed. While Japan remained on top, its growth rate declined sharply. It was closely followed by Canada, whose growth rate was little affected by fluctuations in the global economy. At the other extreme, the growth rates of France, West Germany, and the European Economic Community in general fell below that of the United States (Chart 3-2 and Table 3-1).

The result was that between 1955 and 1974, the shares of cumulative GNP among the G-7 countries changed dramatically: the share of the United States fell from 64.5 to 46.7 per cent, while Japan's grew from 3.8 to 15.1 per cent. The GNP share of the four European nations grew from 27.4 to 33.5 per cent, and Canada's representation was up slightly, from 4.3 to 4.7 per cent.[1]

At the same time, the U.S. share of world product declined steadily, finally stabilizing in the early 1980s; it fell from about 28 per cent in 1960 to approximately 23 per cent by 1973, and to just under 21 per cent by 1980. Over the same period, the share of developing countries as a whole grew from 25.2 per cent in 1960 to 30.1 per cent in 1980.[2]

3 Since World War II, international trade has grown steadily. This phenomenon is well known. Table 3-2 clearly shows how merchandise trade has grown, although the degree of integration depends a great deal on the industry involved: while very high in sectors such as electronics, it is naturally substantially lower in areas such as construction materials. Turning to non-merchandise trade, an in-depth examination reveals that "interest and dividends" have grown markedly as a result of rising current indebtedness and the internationalization of production, a growing share of which is foreign-controlled.

Chart 3-2

Growth Rates of the Major Industrialized Nations, 1973-86

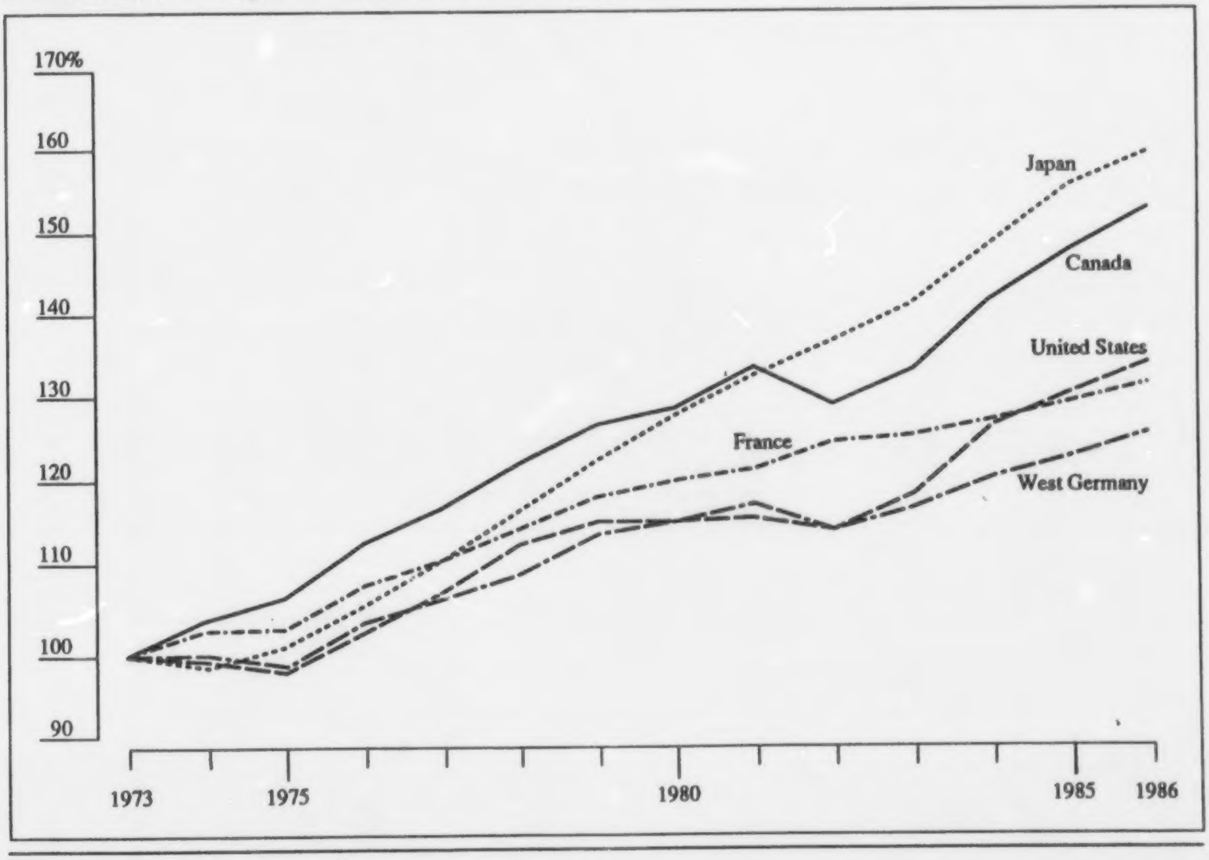


Table 3-1

Average Annual Real GDP Growth Rates in the Major Northern Areas, 1960-87

	Review 1960-73	1973-80	1980-86	1984	1985	1986	1987
				(Per cent)			
European Economic Community (12)	4.7	2.2	1.4	2.2	2.5	2.4	1.9
United States	3.9	2.1	2.6	6.6	3.0	2.7	2.5
Japan	9.9	4.1	3.6	5.0	4.7	2.5	2.7
Canada	5.6	3.8	2.9	6.3	4.3	3.3	3.9

SOURCE Wharton, cited in Ramsès, *Mondes en mouvement* (Paris: Economica, 1987), p. 182.

Table 3-2

Average Annual Growth Rates of World Merchandise Trade and Output, 1960-86

	1960-70	1970-80	1980-86
		(Per cent)	
Exports			
All products	8.5	5.0	2.5
Manufactured products	10.5	7.0	4.5
Production			
All products	6.0	4.0	2.0
Manufactured products	7.5	4.5	2.5

SOURCE GATT estimates, "Le commerce international et les perspectives actuelles," *Europolitique*, no. 1304 (April 4, 1987), cited in Ramsès, op. cit., p. 166.

4 Between the 1960s, 1970s, and 1980s, profound structural changes in world output took place. This phenomenon is clearly shown in Charts 3-3 and 3-4.

– Chart 3-3 compares the 1960s with the 1970s in market-economy countries for seven sectors of the manufacturing industry: the drop in iron, steel, and other metal products contrasts sharply with the relatively stable growth of the food industry.

– Chart 3-4 focuses on the metal and mechanical industries. It shows that the gaps in growth between sectors are widening: for example, computer equipment has maintained steady growth over the decades, whole shipyards have seen growth fall from 6.9 to –4.4 per cent. The trends are similar in the agri-chemical industries.

These, then, are the basic facts. It remains to interpret them and to identify the underlying major trends, then to decide which of these trends will continue to influence the shape of the global economy over the next 15 to 20 years.

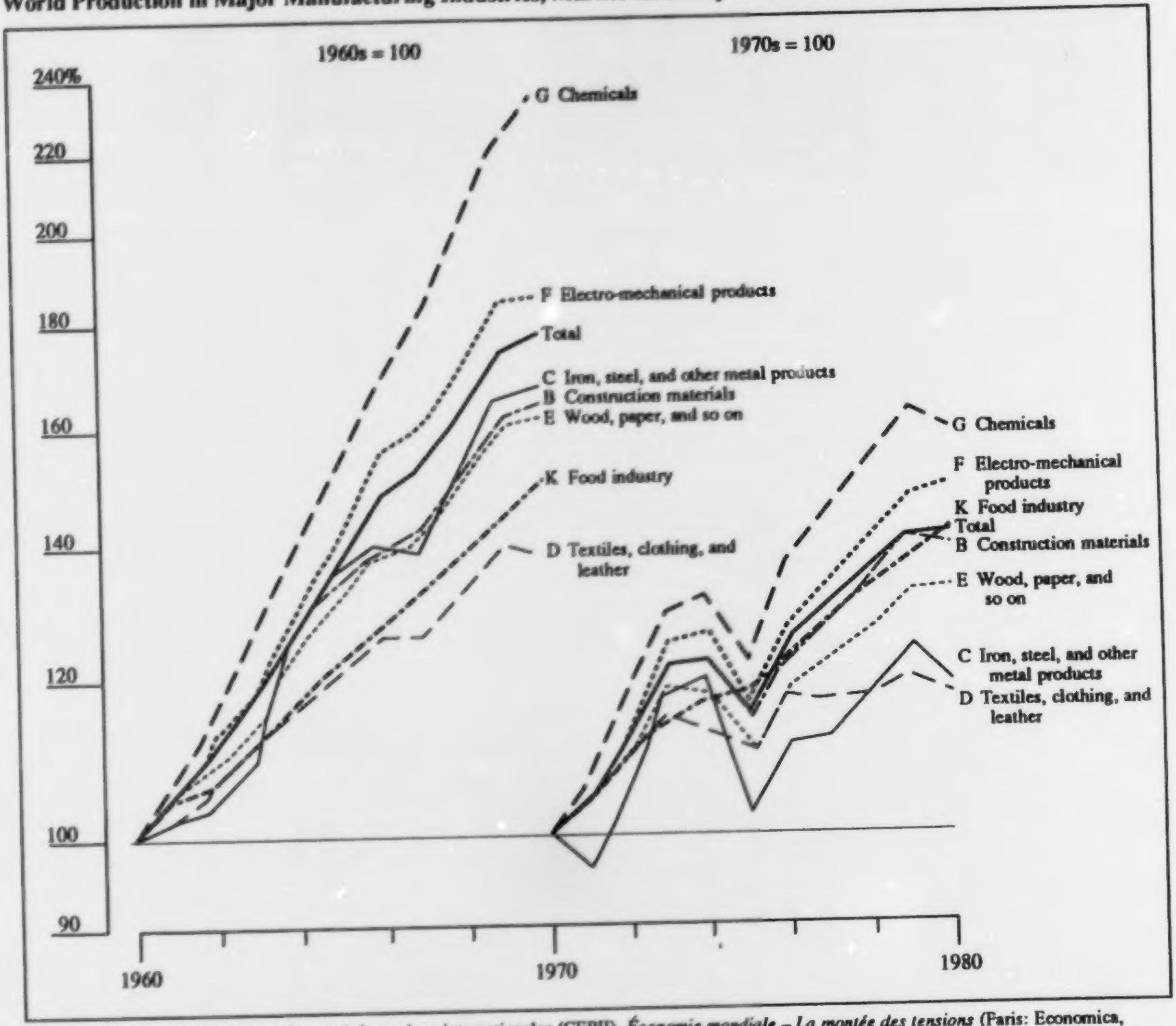
The Major Trends and Their Longevity

The worldwide economic boom in the postwar era was strongly influenced by the dominating role played by the United States. That country's endorsement of freer international trade, technology transfer, stable exchange rates, and assistance to less-developed nations did much to ensure steady and sustained growth. The price paid for this growth, however, was some profound changes in the structure and operation of the international system, which in turn created a new series of problems.

These changes may be summed up in terms of three major trends: the global economy is becoming increasingly multipolar; national economies are becoming much more

Chart 3-3

World Production in Major Manufacturing Industries, Market-Economy Countries, 1960s and 1970s



SOURCE Centre d'études prospectives et informations internationales (CEPII), *Économie mondiale – La montée des tensions* (Paris: Economica, 1986).

interdependent; and, while the Third World is making progress, the differences between these countries and others are widening. Two other types of trends should also be mentioned: technological progress and a number of worldwide demographic trends.

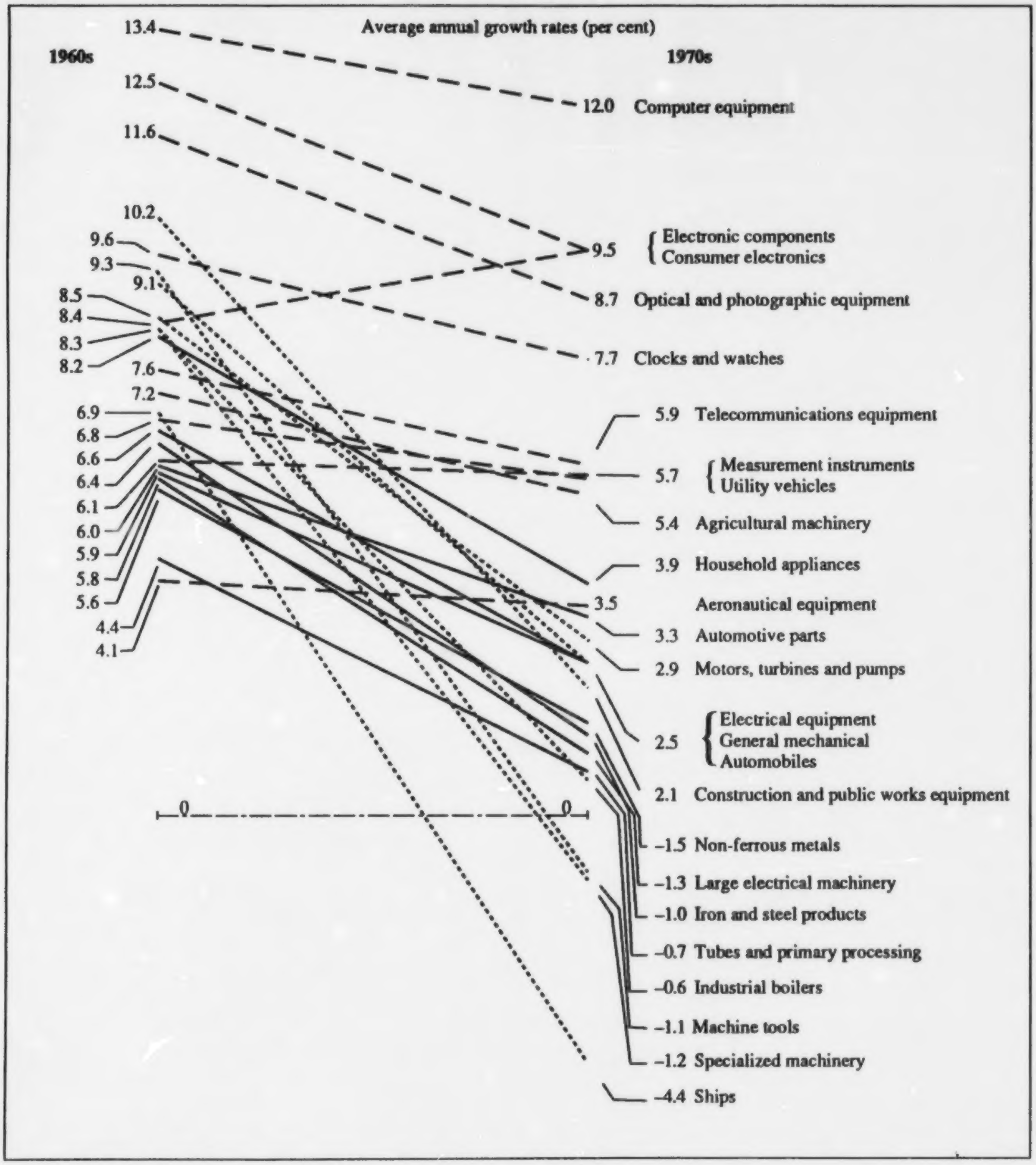
Trend Towards Multipolarity

A region or a country is said to be a pole when a group of economic, political, and social actors have enough interests in common to coordinate their strategies (implicitly but frequently) in order to influence the rules of the global economy. During the 1950s and 1960s, the United States was the dominant pole in the world economy; however, the rise of Japan, the revival of European nations, and the growing importance of Asia's newly industrialized countries (NICs) have since then given birth to a multipolar economy.

Asia's NICs cannot yet be considered a pole in their own right, and the European pole is still at the development stage. Still, it is significant that the United States, while still

Chart 3-4

World Demand by Volume, Metal and Mechanical Industries, 1960s and 1970s



SOURCE CEPII, *Économie mondiale – La montée des tensions* (Paris: Economica, 1986).

a first among equals, now represents only one of several decision-making centres in the global economy and is now strongly influenced by the actions of other nations, particularly Japan and Europe. In order to control fluctuations in its dollar, for instance, the United States must seek the assistance of the Bundesbank and the Bank of Japan. It has asked West Germany (unsuccessfully) to alter its macroeconomic policies. It is engaged in a number of trade battles: with Japan (in particular, over semiconductors and agricultural products) and with the EEC (with respect to agricultural products, especially).

Thus, for about a decade now, the management of the global economy has come to depend increasingly on cooperation between the governments of the major industrial nations. However, such cooperation does not come easily, because governments do not always see eye-to-eye on current issues and because they are all subject to a variety of internal pressures and domestic lobbies.

From North America to Europe and Japan, the difference in the way that events are perceived is often very wide. For example, in 1975 most U.S. economists interpreted the economic slowdown as a routine recession, made more serious by unpredictable circumstances. Many European economists, on the other hand, saw it as the start of a new phase of slower growth. Politicians and economists in West Germany are obsessed with the fear of inflation and trade deficits. Japanese leaders see their country as vulnerable and, despite high balance-of-payments surpluses, are leery of free trade. For its part, the United States resists the notion that the effects of its policies on the world economy have to be taken into consideration.

The important role played by domestic political pressures became clear in 1980-81 when Mr. Reagan and François Mitterand, in the course of their respective electoral campaigns, pledged themselves to diametrically opposed policies.

In a multipolar world, therefore, achieving cooperation among governments is often fraught with difficulty.

And yet, multipolarity is undoubtedly here to stay. Predictions that Japan will usurp the U.S. leadership role do not bear up under scrutiny. Nonetheless, two important questions must be asked in reference to multipolarity:

- Does the rise of the Pacific Rim countries point to the emergence of a U.S.-Japan duopole, or does the revitalization of Europe, with its integrated domestic market, point to the continued existence of a U.S.-EEC-Japan triad? Given the first case, the United States and Japan will conclude a wide range of agreements on trade and technology and will agree to preferential interpenetration of their economies. Given the second case, relations between Europe and Japan will intensify and solutions to trade disputes will be sought on a wider basis.

- Where does Canada fit into these two possible configurations? Will it be a decision-making centre in its own right, or will the economies of Canada and the United States become so closely intertwined that all of North America could be considered a single pole?

Whatever the case, barring a serious crisis, the rapid development of cooperation among governments does not seem the most likely outcome.

The Rise of Interdependence

Rather than interdependence, it might be better to speak of internationalization or globalization of the economy. Interdependence does not simply refer to the increasing importance of exports (or imports) in the GDP of different countries. It involves human migration, transfers of information and technology, and capital flows. It serves to fuse multiple markets into a single market (financial assets are an example). It leads to the creation of systems such as banking networks, airline reservations systems, and scientific data banks. It gives rise to transnational actors, from multinational enterprises to technological research supercentres and intergovernmental organizations. It promotes awareness of the common ecological and cultural heritage of humankind.

Interdependence thus generates an extremely complex web of relationships, encompassing both clearly identified national activities and highly globalized ones.

The intensity of interdependence poses two main problems for the governments of the developed nations (and these problems have only grown since the early 1970s):

- The room for manoeuvre of individual governments in macroeconomic policy is increasingly limited as each recognizes the need to coordinate its economic policies, including both monetary and fiscal measures, with those of its partners. At the same time, caught between multipolarity and strong domestic pressure groups, governments find it very difficult to achieve cooperation (in other words, the reasons why the global economy cannot be managed, at least for the present, are very deep, indeed).

- The restructuring process under way at the microeconomic level in the world production system is starting to affect two essential prerogatives of the state, even among the major players: control over some aspects of its national defence (because of the risk of monopolization of certain sensitive world markets by a small group of enterprises from one country); and the implementation of redistribution policies (because, through trade, a world labour market is gradually forming).

And what will tomorrow bring? The pressures for interdependence are so strong that it is difficult to imagine the trend reversing. However, the possibility of a protectionist backlash (the severity and duration of which cannot be predicted) should not be entirely discounted.

Uneven Development in the Third World

From a long-term perspective, the development of the Third World must be recognized as a historical reality.

Illiteracy rates, for example, have fallen over the course of 35 years (1950-85) from 85 to 53 per cent in Africa, from 42 to 17 per cent in Latin America, and from 80 to 40 per cent in Asia. Moreover, the male/female gap in schooling has narrowed.

Life expectancy has risen dramatically in the Third World as a whole; in India, for example, where poverty is recognized as a major problem, the average life span of the population has doubled in less than 50 years.

Over the same 35-year period, real income per capita has risen, on average, from $513 to $880 (in constant dollars) in Africa (including North Africa),[3] from $1,000 to $2,000 in Latin America, and from $300 to $600 in China.[4]

Annual industrial production growth rates in the developing countries, using a shorter horizon, were 5.6 and 4.6 per cent for the periods 1973-80 and 1980-85, respectively. In the developed countries, by way of comparison, the same figures were 2.1 and 1.0 per cent [CEPII, 1986].

Thus, despite the misery, famine, and nightmarish visions of slums, it cannot be denied that the Third World has made considerable progress.

But the pace of growth has varied widely between countries and economic expansion is often accompanied by huge income disparities within countries. Average annual income growth rates per capita over a 20-year period vary between slightly below 1 per cent for certain countries to 6 and 7 per cent for others.

In other words, the Third World – a group of countries that, despite the vast historical differences separating the Manchu Empire, America's Spanish and Portuguese colonies, and the short-lived kingdoms of Africa, had much in common in 1950 because they had been unable or unwilling to adapt to the Industrial Revolution launched by Georgian England – now is a diverse group as it prepares to enter the club of industrialized nations.

What conclusions emerge from this evidence for our study of future prospects? For one, Third World development will continue despite the debt crisis and will lead to profound changes in trade in industrial goods, foodstuffs, and energy. The pace of development in the various regions will, however, continue to vary widely.

Technological Change

The year 1970 was also a watershed year for technological change. Here, we will use C. Freeman's [1987] four-tiered classification system for technological innovations:

- marginal innovations leading to incremental improvements in products and processes;
- radical innovations that lead to a complete revamping of production techniques in a particular area;
- technical revolutions that give rise to new industries with their own products and processes; and
- changes in the technical paradigm that transform relations between the technical system, the economy, and society.

It is clear that the first two categories dominated the 1950s and 1960s, while the last 15 years have been marked by the emergence of information technologies that have completely changed the technical system of our society, reflecting a change in the technical paradigm. Biotechnology, on the other hand, can so far only be considered a technical revolution; its primary impact is just starting to make itself felt in health care and the agri-food industry.

Overall, the coming revolution will profoundly change our society's conception of time, information, energy, and human life itself.

Already, by transforming employment patterns, promoting the emergence of new services, increasing the importance of research for the design of new industrial processes, and changing decentralization policies, technological progress now represents, along with changing demand patterns and the changing costs of inputs, one of the main forces reshaping the structure of world production.

Indications are that technological progress will probably maintain the same pace until the beginning of the next century.[5] In the key electronic-components industry, for example, experts do not foresee any slackening of the drive towards miniaturization and lower costs in this century. The crucial restructuring role played by information technologies should also continue into the year 2000.

Demographic Factors

It is beyond the scope of this paper to discuss the worldwide demographic outlook in detail, but an examination of the economic environment of Canada to the end of this century would be incomplete without a review of some well-known demographic facts:

- the world's population will continue its climb (although at a somewhat slower annual rate), reaching between 7.5 and 9 billion by the year 2025;

- most of this growth will take place in Third World countries, while population in the developed market economies will remain more or less stable. Consequently, over those 35 years, the share of world population accounted for by North America, Europe (the Soviet Union excluded), and Japan will fall from 18 to 11 per cent;

- urbanization will continue unabated; according to the United Nations, the proportion of the population living in cities will climb from 41 to 60 per cent between 1985 and 2025, most of the growth taking place in the developing world;

- thus, while the nations of the North will have to face the impact of aging on the work force and on retirement and health costs, the countries of the South will face the challenge of providing housing, training, and jobs for youth; and

- given the North/South income gap and the political instability of many countries of the South, there will likely be significant migration from the latter regions to North America and Western Europe.

The major demographic trends outlined above leave open a wide range of possible outcomes. They nevertheless help us define the context within which to analyse the future outlook of the international economic system.

The International Economic System: The Outlook

Analysing a highly complex system is always a delicate task because the large number of actors and their multiple interactions are difficult to describe in a linear fashion. Thus the need to look at the system from several different but complementary angles. That is the goal pursued in this section, which will focus in turn on regions, patterns of flow, mechanisms, and actors.

The Future of Regions

It is common to divide the world into three parts: the OECD countries, Eastern Europe, and the Third World. This division will be used here, except that, in the case of the OECD, the focus will be on the United States-Japan-EEC triad, and, in the case of Eastern Europe, on the Soviet Union.

The Triad

1 There are two main reasons for focusing on the United States: it is the foremost world economic power and it is Canada's principal trading partner.

The advantages enjoyed by the United States are well known and do not have to be described in detail here: abundant natural resources (although supplies of such commodities as oil and natural gas are insufficient and certain metals are completely lacking), a highly productive agricultural industry, powerful multinational corporations, an abundant and diversified service sector, a dominating currency, a huge capital market, a flexible labour market, an excellent higher-education system, and a wide-ranging, efficient research system.

However, these assets cannot hide some very real weaknesses: a heterogeneous work force of uneven quality, firms that aim at short-term profitability, a production system beset by uneven competitiveness, unsatisfactory secondary education, and high military spending (which must be maintained as part of the country's international role).

The United States is also characterized by a fragmented structure of political responsibility, so that formulating coherent macroeconomic policy and promoting international cooperation in a multipolar world both become extremely difficult tasks. And this is all the more true because, while the United States is no longer the "imperial" power, it is not yet ready to be "just one of the boys."

In the medium term, growth will depend a great deal on how future administrations handle the nation's foreign debt and budget, particularly since a recession is forecast for 1989. In the longer term, prospects for growth are reasonably good; the pattern of the last 15 years should continue, with an annual growth rate of around 2.5 per cent. Under these circumstances, the U.S. share of world product will undoubtedly continue to fall, but quite slowly.

2 In the eyes of some, Japan is the future regulator of the global economy. This is inaccurate, however. Poor in resources, saddled with an unproductive agricultural sector, and handicapped by its aging population, Japan draws its strength from the homogeneity and quality of its work force, a collective decision-making process, a low level of military spending, efficient production methods, its espousal of technology, the reliance of its industrial sector on long-term strategies, and its dominance of the world market in certain key sectors.

But Japan also faces a number of problems: how to reduce its balance-of-payments surplus (by stimulating domestic demand and increasing imports); how to head off protectionist backlashes in the sectors it now dominates worldwide (electronics, for instance); how to open up its closed society, now essentially driven by the search for harmony between various coalitions: the members of the Keidanren (Japan Federation of Economic Organizations), factions of the administration, and factions of the Liberal Party; and how to change its status with respect to the global economy from that of a "free rider" to a position of co-responsibility in world affairs.

Overall, Japan's prospects for growth, while remaining better, on average, than those of the OECD countries, should become less rosy. Japan's share of the world product should continue to rise, but only slightly; annual growth rates of 3.5 to 4.5 per cent seem the most realistic.

3 It remains to discuss the European Economic Community, that group of nations that have managed to preserve their individuality while weaving a network of strong links among themselves.

An examination of the EEC's competitiveness reveals some good and bad points: the working-age population is on the verge of decline; energy resources are inadequate; the agricultural sector remains undiversified, though it is sometimes very productive; scientific research is of high quality but without sufficient links to industry; the production system is of uneven competitiveness but very diversified, with a solid reputation in fields such as chemistry and mechanics; sectors of future importance (such as electronics) display serious deficiencies; and there has been some deterioration in trade relations with the major industrial powers. Indeed, some observers have gone so far as to state that Europe is on the decline.

In addition, the European Economic Community is confronted with three specific problems: the constitution of an integrated domestic market by 1992 (which will involve the simultaneous pursuit of Europeanization and globalization); the development of a two-tiered decision-making process – at the EEC level and at the national level, with the Court of Luxembourg setting the jurisprudence; and adapting social legislation and regulations governing the functioning of the welfare state – a set of laws and regulations that served to bridge the social divide caused by the Industrial Revolution but that is also responsible for the rigidities underlying the high level and particular characteristics of European unemployment.

In the long term, then, is Europe destined to lag behind North America and Japan in terms of growth? The complexity of the situation makes this a difficult question to answer but, at least for the present, such a conclusion would seem premature. In light of the recent progress towards full economic integration, there is reason to hope that Europe's growth rate will recover in the last decade of the century.[6] Nevertheless, the EEC's share of world output will likely suffer a slow decline.

Within the triad, the United States now holds a pre-eminent position because its links with Japan, Canada, and the European Economic Community are, in each case, much more extensive than those maintained by the other partners among themselves. In light of Japan's successes, two possible scenarios present themselves: the emergence of a U.S.-Japan duopole, into whose orbit Canada will be drawn along with Southeast Asia (leaving the EEC out in the cold); or a strengthening of the triad through the development of relations between Japan and the EEC that will balance, at least partially, the links between these two units and the United States. In the latter case, Canada would be well advised to develop its own relationships with the triad nations. In all probability, the future course of history lies somewhere between these two extremes.

The Soviet Union

Given the current struggle in the Soviet Union between reformist and conservative elements, it is particularly difficult to predict the eventual outcome of Gorbachev's *perestroika* initiative. Nevertheless, it is instructive to examine some of the possibilities. One real possibility is a return to Brezhnevian policies, with or without the present

Secretary General. In that event, the Soviet Union would attempt to maintain its control over Eastern Europe while limiting its own trade links with the rest of the world; the country would, as a consequence, find it extremely difficult to adapt its economy to the third industrial revolution – a type of revolution that does not spread easily in a highly centralized system. Less likely is the other extreme: the development of true democracy in Soviet society and the effective decentralization of its economy, including the development of trade relations between Comecon and the European Economic Community – West Germany, in particular. There remains a third scenario: limited *perestroika*, whereby the Soviet economy becomes more efficient without any reduction in the power of the ruling elite; in this case, given the psychological effect of disarmament treaties on the West, a new-style foreign policy would likely secure for the Soviet Union a degree of economic assistance from the EEC. This potential outcome would have the best chance of becoming true under the protectionist scenario discussed later on.

The Third World

In light of the process of differentiation now under way in these countries, it might be better to speak of "the Third Worlds." One can identify at least five distinct regions.

1 With their combined population of 2.7 billion inhabitants, China and India, the two-continent nations, will account for close to one third of the world's population by the year 2025. Their prospects for development are relatively favourable. Income per capita should rise slowly by about 1.5 or 2 per cent a year. In both countries, progress in agriculture should stimulate industrial development; and it is not far-fetched to suggest that China could become a major exporter of manufactured goods by the first decade of the next century, although only some areas may develop along lines of modern industrialization.

2 Growth in the newly industrialized countries of East and Southeast Asia should continue to be vigorous, yet fragile. Vigorous, because these countries have successfully assimilated the basic mechanisms of industrial capitalism; and fragile, because the sheer volume of their exports leaves them vulnerable to a potential wave of protectionism and because their political systems are still far from stable.

3 Ever since the second oil shock, Latin America has been suffering from the consequences of past mismanagement, paying for its leaders' decision to fund investment and consumption by massive borrowing. Thus its future depends both on its domestic economic policies and on restructuring its debt. The next decade should usher in a new period of growth, but Latin American economies will undoubtedly be better-managed this time than in the 1970s.

4 Despite their wide diversity, the countries of North and West Africa have much in common. These similarities make prospects for economic growth rather dim: fast-growing populations, intense urbanization, unproductive agriculture, industrialization of only marginal efficiency, low oil prices, unstable political systems, a preoccupation with ideologies, and so on. In no other part of the world are the economic and political aspects so intertwined, particularly considering the danger hanging over the region from the Israeli-Palestinian and Iran-Iraq conflicts.

5 As for Africa, south of the Sahara, the consensus is that the outlook is not bright. Steady population growth, stagnant or declining agricultural production per capita, limited possibilities for industrialization, sagging markets for commodities, persistently unfavourable terms of exchange, power structures that are incompatible with development – all these facts indicate that this region will continue to require extensive international assistance throughout the next 25 years.

Despite this gloomy assessment, the Third World as a whole should be able to improve its share of world income and world export volumes between now and the next century.

Patterns of Flow

We will focus in turn on commodities, manufactured goods, and services. To complete the picture of Canada's place in the modern world, a discussion of major trends in Canada's trading patterns over the last 20 years will be found in an appendix.

Commodities

As far as energy is concerned, the most important development of the last 15 years, aside from the two oil shocks, has been the slower growth of energy consumption in the industrialized nations. Two factors have led to lower energy consumption elasticities in relation to GDP: energy conservation and changes in the production structures of the OECD countries. At the same time, because of the decline of the majors, of the disarray within OPEC, and of the proliferation of intermediary suppliers, oil prices now respond instantly to changes in supply and demand. Because some crude-oil producers rely on increased sales to sustain their revenues, the slightest decrease in demand is enough to send prices tumbling. As a consequence, most observers agree that prices are most likely to continue to fall over the next seven or eight years. This trend may turn around after 1995, however, as Third World consumption increases and production starts to decline in the United States. The prices of coal and natural gas will remain tied to oil prices. In this context of relatively abundant energy and in the aftermath of Chernobyl, the future of the nuclear industry in the next decade appears uncertain.

Energy conservation efforts, however, could at any moment be overtaken – temporarily or otherwise – by a political crisis in the Middle East, since this region holds the vast majority of the world's crude-oil reserves.

In the longer term, it is quite possible that the energy picture may be dramatically different by the year 2010, with a return to tight oil markets and a revival for nuclear power. It is not difficult to imagine a combination of economic and political events that would precipitate a third oil shock at that time.

The question of metal ore is more complex than that of energy because of the wide substitutability between metals. According to technological forecasting experts, the most important development in this area will be the advent of an era of "hyperchoice" among materials, whereby non-ferrous metals may find themselves in competition not only with steel but also with plastics, ceramics, and compounds. This trend, coupled with lagging demand for specific commodities, will probably mean that world demand for non-ferrous minerals in the future will not be as favourable as in the past. Naturally, in the long term, cyclical developments in consuming countries may lead to fluctuations. The most probable scenario, however, is for long periods of depressed prices, punctuated by brief bursts of activity during periods of buoyant economic conditions.

It hardly needs to be pointed out that the metal mining economy (at least for certain metals) has its own Saudi Arabia in the form of South Africa and that disturbances on these markets between now and the end of the century cannot be ruled out.

Grain plays a major role in feeding the world's population. The main factors affecting the structure of the world grain market are as follows: overall production has grown faster than world population in the long run; remarkable progress has been made in Asian agriculture in the last 10 years; per-capita production in sub-Saharan Africa has been on the decline for 25 years; malnutrition afflicts several hundreds of millions of people, mainly in Africa and South Asia; international markets are dominated by the United States (except for rice); and in all the major (developed) producer nations, agriculture enjoys some form of protection.

What does the future hold in store? There are basically three possibilities:

– a rise in total factor productivity may make it technically possible to increase production significantly in both developed and developing nations; thus real prices on international grain markets should not increase;

– although national agriculture policies (particularly the Common Agricultural Policy of the European Economic Community) will continue to evolve, it is unlikely that the import markets of the major producing nations will become more open, considering the strength of domestic pressure groups supporting these policies;[7] and

– the number of undernourished people will decrease only slowly (as a percentage of world population), because malnutrition is not generally the result of a physical lack of resources but of the inability of certain groups of people to gain access to these resources because of economic or social factors.[8]

Manufactured Goods

In world trade in manufactured goods, there are four major trends that should continue into the next century:

1 The pattern of growth rates by industry that became apparent some 10 years ago should continue and the wide divergences that have evolved are expected to endure. Thus the structure of the production system in the year 2000 will be quite different from that of 1975. Electronics and chemistry will account for much larger shares.

2 The development of intra-industry trade should continue, for two reasons: increasing product diversity (in chemistry, for example) and the parcelling-out of component and subsystem production to different parts of the world by the large multinationals (in the electromechanical and electronics industries, for example). This latter development clearly owes much to the investment policies of large international conglomerates that wish to establish their presence, in terms of both commerce and production, in the three main developed areas of the world – North America, the EEC, and industrialized Asia.

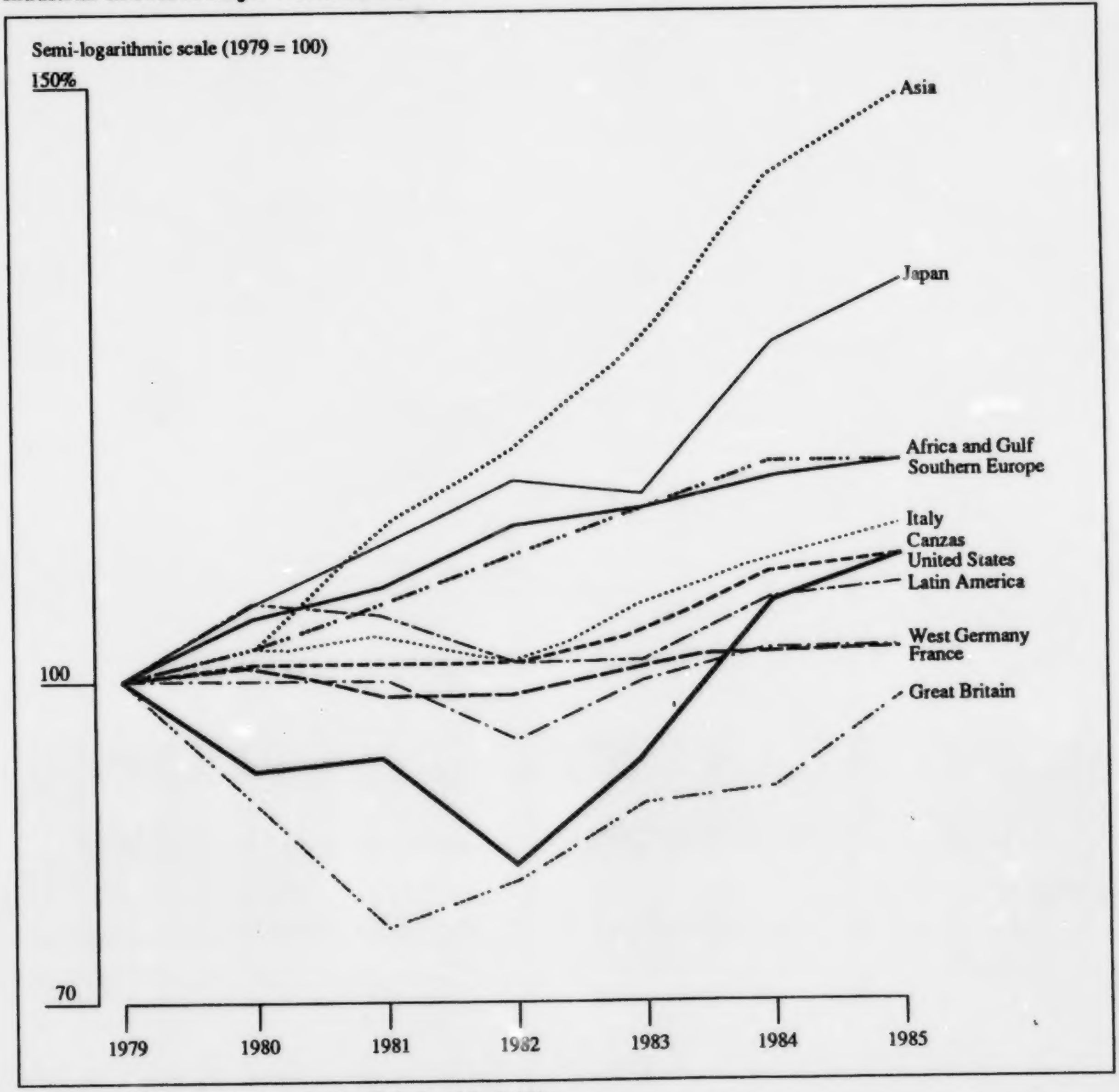
3 On a geographic basis, industrial production should continue to grow faster in the Third World than in the

OECD countries. By the end of the century, the leading position of Asian NICs may be challenged by Latin American countries, if they are able to overcome their debt problems. A revival of the EEC by 1995 is not out of the question either. Overall, the distribution of growth rates shown in Chart 3-5 for the period 1979-85 is likely to be a good indication of the situation in the next decade.

4 Where the various regions of the world stand with respect to international trade can be seen from Chart 3-6,

Chart 3-5

Industrial Growth in Major World Zones, 1979-85



NOTE Canzas includes Canada, Australia, New Zealand, and South Africa.
SOURCE CEPII, *Industrie mondiale – La compétitivité à tout prix* (Paris: Economica, 1986).

which shows the regional shares of imports in demand and of exports in output for the period 1967-83.

Markets in the United States should continue to open up. U.S. exports, meanwhile, should revive, since the cumulative trade deficit cannot continue to rise indefinitely.

In Japan, where markets are, at best, only half-opened, imports should grow much more rapidly. Meanwhile, exports will continue to grow but at a slackening pace, as Japanese multinationals set up operations abroad.

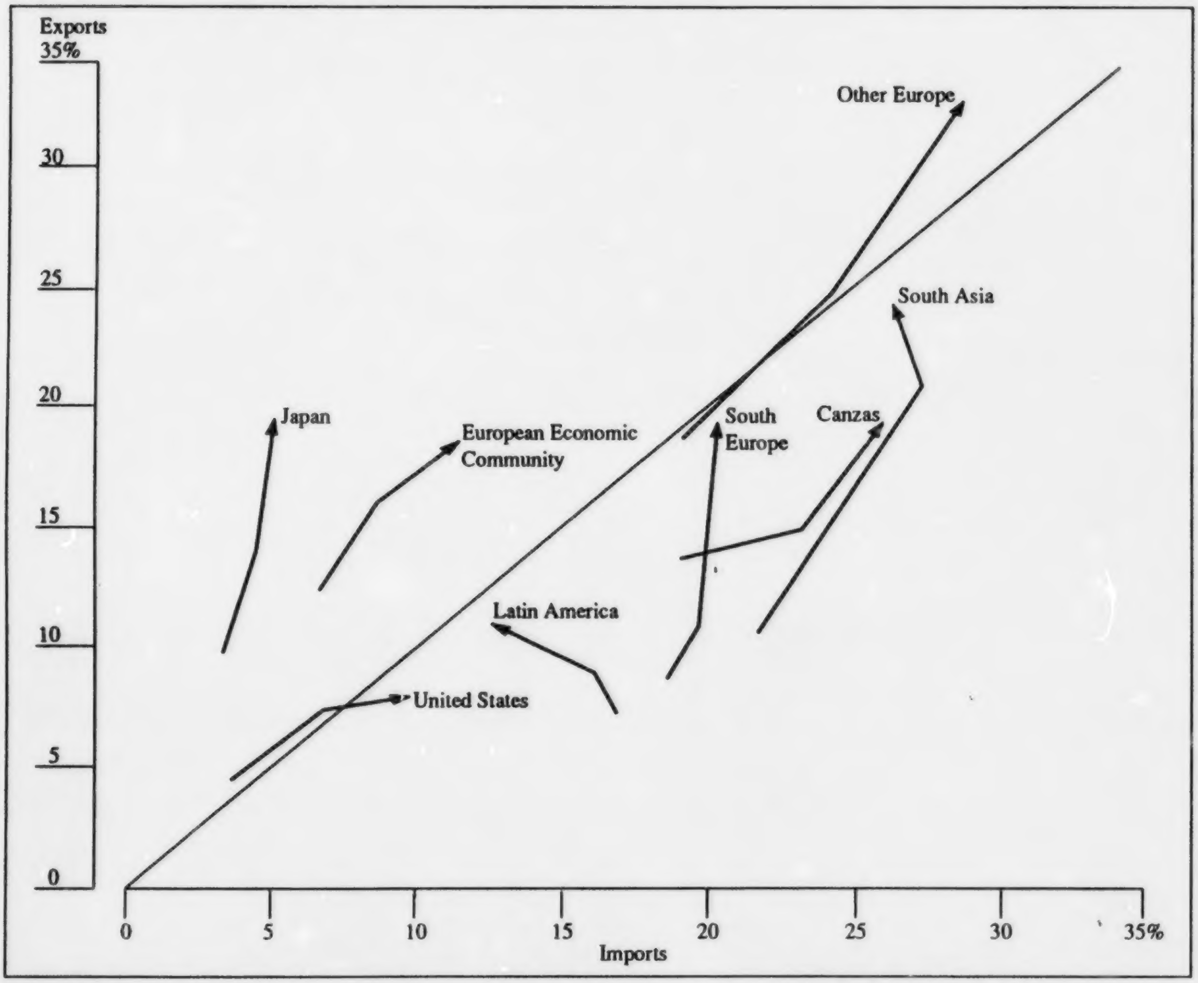
In the European Economic Community, exports will likely grow more slowly than imports because of the presence of a number of mature industries in the European industrial structure.

In the rapidly developing countries of Asia, on the other hand, export growth should far outstrip that of imports.

Last, Latin American countries should be in a position to lift some import restrictions as their debt problems are gradually solved.

Chart 3-6

Openness of World Zones to Trade in Manufactured Goods, 1967-83



NOTE Other Europe includes Scandinavia and Alpine countries. Canzas includes Canada, Australia, New Zealand, and South Africa.
SOURCE CEPII, *Industrie mondiale – La compétitivité à tout prix* (Paris: Economica, 1986).

Overall, then, the Third World's share of developed-nation imports should increase dramatically between now and the next century.

As far as Canada is concerned, while the free-trade agreement with the United States threatens to undermine the Canadian automotive industry, the U.S. share of Canadian trade in manufactured goods overall is more likely to rise than to fall. Canada's trading activities with the Third World should increase sharply.

Services

Economists group a number of diverse activities under the term "services." Their importance in industrialized societies has been rising. Some of these activities do not have an international dimension (retail sales and health care systems, for example), but others are growing fast at the international level and are having a profound impact on economic relations between countries.

Many of these international services are based on networks that transcend national borders. These networks are themselves made up of two types of primary systems:

- telecommunication networks, which transmit voices, images, and data to all corners of the globe; and

- transportation systems, both for human beings (primarily air travel) and for goods (logistical systems that are becoming increasingly integrated).

Let us look at some examples to discover the probable shape of the international service economy in the future.

Tourism should continue its strong growth. Given the continued attraction of the two major tourist destinations (the Caribbean and the Mediterranean) and rapid expansion in other areas of the world, the tourism economy will come to rely more and more on complex networks composed of travel agencies, tour operators, airlines, and hotel chains, all linked together by electronic reservations systems.

Now that the international capital market is an established reality, the globalization of financial services is already well under way. Thanks to the ever-growing number of interconnected computer systems, real-time transactions are now possible. A major question is whether giant multinational institutions offering direct deposits without counter services will appear. Within the EEC, the constitution of an integrated domestic market will lead to completely free capital flows and drastic changes in the banking and insurance industries.

A third type of service with an international scope is consultant and other high-level management services – legal advice, auditing, strategic planning, specialized software services, technical and financial consulting, and so on. An international market for such services is already well established and participants are organized in networks with branch offices in the major business centres of the world.

Finally, services connected with international industrial operations should also be mentioned: patent and copyright payments, licences, research contracts, miscellaneous management services, and so on.

The international importance of consultant services is far greater than is suggested by their role in balances of payments. Indeed, consultant services play a central role in the globalization of economic activities and markets, in the conversion of savings into investment, in the spread of managerial expertise, and in technology transfers.

Within the networks that link these services, large metropolitan centres such as New York, Tokyo, London, and Paris are increasingly assuming the role of communication hubs. The regulation of tomorrow's international economy will tend to be concentrated in these centres.

Analysing the international system in terms of flow patterns, although essential, is not enough. Regulatory mechanisms, which are largely controlled by governments, also play an important role.

Regulatory Mechanisms

There are two obvious candidates for examination here: the international monetary system, which determines exchange rates; and international trade regulations, which define the framework within which trade and investment take place.

The International Monetary System

Since the early 1970s, the international monetary system has been based on the principle of variable exchange rates among the three major currencies – the U.S. dollar, the Deutschemark, and the yen. There has been considerable exchange-rate instability within this system because of three factors:

- the existence of an international capital market which enables financial flows to be redirected quickly;

- the importance of anticipation in the investment decisions of agents; and

- the lack of general macroeconomic policy coordination (not simply in monetary policy) between governments, each of which has to contend with its own national objectives and pressures from domestic groups.

Unstable exchange rates, for their part, have two consequences:

- balance-of-payments deficits (and surpluses) that tend to follow exchange-rate fluctuations with a certain lag; and

- because the relative industrial competitiveness of the major areas of the world is strongly affected by exchange rates, world production structures are subjected to shocks.

This leads to two questions:

- How will the exchange rate of the U.S. dollar and the U.S. deficit evolve between now and the next century?

- Is there any possibility that the international monetary system will be reformed over the next 10 years, allowing exchange rates to regain a degree of stability?

These two questions are clearly closely linked: the first looks at the problem from a cyclical point of view, and the second, from a structural point of view.

Let us look at the second question first. Certainly, the weakness of the Bretton Woods system may be attributed to such technical aspects as the lack of forced currency re-evaluation in cases of trade surpluses, but the root of the problem lies in the transition from a U.S.-dominated to a multipolar global economy. Indications are that this structure will persist for another quarter century. Thus, the reform of the international monetary system would require political consensus among the United States, Japan, and the major western European nations. This is not likely to happen (except in the event of a major crisis), because the interests of these powers do not coincide in every respect.

The first question is more technical in nature. The reply must take into account the expectations of economic agents, as well as the macroeconomic policies of the United States, Japan, and Western Europe.

The expectations of economic agents will turn upon not only the usual factors, but also on whether or not Japan will judge it politically acceptable to allow some Japanese investment in the United States, and whether or not the United States will accept some foreign ownership of its assets. Japan must thus balance the advantages for its industry of export surpluses against the disadvantage of investing some of its national wealth abroad. The United States is faced with the opposite choice.

The U.S. government, for its part, has three traditional tools for reducing its foreign debt – namely, fiscal policy, monetary policy, and trade policy. But several other avenues are open: sharply reducing domestic demand, thus leading to a steep decline in imports; letting the dollar drop in order to stimulate exports and dampen imports; and enacting protectionist measures designed to reduce imports. Naturally, the first of these options would encounter the most resistance on the national level.

In all three cases, the Japanese and European economies would have to make adjustments, compensating for lower exports by stimulating domestic demand.

The issue that remains unanswered, however, is what level of deficit will be considered acceptable by business interests and by the U.S. and Japanese authorities.

The Regulation of Foreign Trade

This second regulatory mechanism is linked to the first, but a number of sectoral factors enter into play. At the present time, there are several initiatives under way to reform international trade regulations, including:

- general bilateral agreements, such as the one between the United States and Canada, as well as specific sectoral agreements, such as those between the United States and Japan on semiconductors, public works, and so on;

- regional agreements in certain areas of the Third World and, especially, within the EEC, as progress is made towards economic integration; and

- an international agreement under the Uruguay Round of GATT in order to facilitate freer trade worldwide.

The agenda for GATT negotiations includes, in addition to such traditional themes as resolving international disputes and safe-conduct procedures, newer topics such as agriculture, new technologies, intellectual property, and, especially, services.

Indeed, the problems connected with regulating international trade until the end of the century can be divided into three groups:

1 Agriculture, including two areas of dispute: the first pitting the United States, which favours freer trade, against Japan and the EEC, which would like to retain a degree of protection; and the second between countries of the South that are committed to exporting and processing their agricultural products, and those of the North that are determined to maintain their import barriers.

2 High-tech industries, considered by the major industrial nations as essential to their national security, which frequently benefit from government assistance (in a variety of forms). A related question is the need for international antitrust regulation in the event that an essential industry falls under the control of a group of firms from the same country.[9]

3 Services, because it is in the area of exportable services that protectionism is most firmly entrenched. "Trade liberalization in these sectors will be accompanied by conflicts of interest and disputes over sovereignty. Public monopolies are common (in areas such as telecommunications and civil aviation) and national regulations are quite stringent (governing exchanges, monetary policy objectives for financial services). The entry of foreign interests is subject to intense scrutiny or even prohibited. Yet by far the majority of these services rely not only on freer trade, but also on a physical presence in foreign markets. It will also be necessary, therefore, to update and expand the regulations of all OECD countries on direct investment" [Ramsès, 1986].

On the other hand, it is possible that after the restructuring process of the last 15 years, disputes related to such declining industries as iron and steel, textiles, and shipbuilding will not be as heated as they were in the recent past.

Last, internationalization is bringing to the fore a different type of regulatory problem – the problem of regulating international markets. The question of capital markets has already been discussed in this paper.

One thing is certain: trade regulation will remain an extremely complex issue, and the size of current financial imbalances gives cause for fearing that trade liberalization may falter, even with the commitment of the main actors.

Actors

There are a number of groups of actors which, according to their particular interests, act to accelerate or slow down economic globalization.

Multinationals are, by all indications, the most active participants. In industries such as electronics, chemistry, and financial services, these enterprises make it their goal to maintain operations in all three areas – North America, Western Europe, and Japan – and to balance their investments among these three areas. In industries such as aerospace and armaments, they establish links at the international level at the same time as they compete at the market level. Most of these multinationals are still strongly marked by their national origins; by the end of the century, however, their international character will increasingly assert itself. They will then constitute pressure groups that, while occasionally pushing for protectionist measures, will oppose efforts to compartmentalize the global economy.

As the multinationals, most medium-sized businesses are also worried about international competition. Exports account for a significant proportion of their business, and foreign ownership in domestic markets represents a real concern. When these companies cannot stand the heat of foreign competition, they become champions of protectionism.

Unions appear to be on the decline in most developed countries. The decline of industries with traditionally strong union ties, the growth of service industries, the emergence of new technical trades, changing employee attitudes, and pressure from foreign competition, all pose formidable challenges for the union movement. It seems unlikely that unions will manage to organize themselves at the international level. Thus they will probably continue to work against market globalization, but success will be uneven.

Another important actor – non-competitive public utilities – must not be forgotten. From education to social security, from railways to domestic airlines, the organizational structures of such institutions vary considerably from one country to another. Nonetheless, their efficiency is always a crucial factor in international competitiveness.

The final actor to consider is government. Governments are themselves coalitions of actors (the degree of cooperation varying from country to country). Caught between external constraints and internal pressures, governments see their room for manoeuvre shrinking as they try to respond to social demands in an environment that they are less and less able to control.

Thus we have seen that, regardless of whether we base our observations on geographic areas, mechanisms, patterns of flow, or actors, the international economic system is in transition. Some national economies are integrated into the global economy while others are less so; some markets are totally internationalized while others are still segmented; some actors operate at the "world-economy"[10] level, while others are strictly national. This system in transition is at odds with a political system composed of individual sovereign states. By relating these two systems – economic and political – to each other, a number of possible scenarios for the global economy of the future may be constructed.

Three Scenarios

From the point of view of the OECD countries, there are two main factors that can enter into possible scenarios:

- the degree of macroeconomic cooperation between the governments of North America, the European Economic Community, and Japan; and

- the extent of openness of those three major regions to foreign economic interests.

For each of these factors, there are two possibilities:

1 For macroeconomic cooperation, the first possibility is limited cooperation, extending only to the actions of central banking institutions; the second is wide-ranging cooperation, encompassing all aspects of macroeconomic policy with the goal of achieving some kind of worldwide macroeconomic equilibrium.

2 In terms of openness to foreign economic interests, the first possibility is for moderate success at the Uruguay Round, leading to some degree of freer trade; the other possibility is a protectionist backlash strong enough to bring market internationalization to a halt.

There are four ways the above possibilities may be combined into scenarios. Since one of the combinations is virtually impossible (a protectionist backlash coupled with extensive macroeconomic cooperation), our discussion will be limited to three scenarios.

Scenario I: Revival of Protectionism

In this scenario, the United States attempts to reduce its trade deficit without unleashing a recession domestically. Its strategy is to dampen overall demand by adopting a much more protectionist stance in its trade policy. U.S. imports from Asia and Europe begin to fall as a result of this measure.

Initially, East Asian countries try to offset their losses on the U.S. market by more aggressive activity on European markets. The EEC, however, faced with a growing imbalance in its trade with Japan and Asian NICs, opts for restrictive trade policies. Japan is then forced to target Asia and the Third World as its trading markets.

The above scenario is quite similar to scenario D, with its new forms of protectionism, discussed by *Interfuturs* [OECD, 1979] some 10 years ago. At that time, their analysis showed that protectionism would slow world economic growth, but that the three zones of the OECD would be affected in different ways:

- the U.S. economy would remain in relatively good shape, provided that good relations with OPEC were maintained and relations with Latin America were strengthened;

- because of Southeast Asia's limited potential, Japan would only be able to partially make up its losses on U.S. and European markets; and

- in the end, the EEC would be the most affected by a rise of protectionism in the North.

What would be the consequences of this scenario for Canada? There are two possibilities:

- Canada might decide not to emulate the U.S. protectionist policy and instead develop its trading relations with East Asia and the Third World in general; and

- Canada might follow the U.S. lead, and North America would become a virtual economic community of its own.

What are the chances of the above scenario coming true? Certainly, the probability that such an extreme form of protectionism would appear is quite small, but the rise of a more modest form of protectionism is much less unlikely. Still, this scenario remains less probable than some of the others.

Scenario II: Fluctuations

This scenario is based on two assumptions:

- intergovernmental macroeconomic cooperation proceeds only slowly and the interventions of central banks have little effect on exchange rates in the long run; and

- international trade remains relatively open: measures are adopted to encourage the free flow of goods and services at the same time as measures to restrict imports and establishment rights are imposed.

In this scenario, the U.S. balance-of-payments deficit prompts a sharp fall in the dollar, which eventually (after a lag of a couple of years) causes the deficit to shrink considerably. This factor, in turn, leads to a turnaround in expectations and, as a consequence, to a dramatic resurgence of the dollar. Naturally, the mechanism is rather more complicated than suggested here, since the monetary and fiscal policies of the major industrial nations, import and export price elasticities, and the business strategies of the major industrial groups all play a part. The most important features of this scenario, however, are the continual, wide-ranging fluctuations in rates and the lack of stable trade balance figures in the major regions.

For Canada, whose currency is still closely tied to that of the United States, this scenario would signal wide swings in our exchange rate against the Deutschemark and the yen.

The chances of the above scenario coming true are quite good, since it is a good match for the geoeconomic and geopolitical situation described at the beginning of this paper. The possibility that a new crisis might produce yet a third scenario cannot be dismissed, however.

Scenario III: Intergovernmental Cooperation within the Triad

In this scenario, cooperation within the G-7 countries is achieved on:

- coordinating macroeconomic policy in order to keep exchange rates within specific ranges and so to maintain approximate equilibrium in trade balances; and

- defining microeconomic regulations that effect a compromise between international competition and national security (and that prevent abuses of economic dominance).

The first type of cooperation can only become widespread if governments feel compelled to pay more attention to events beyond their borders. One possible impetus could be the advent of a deep recession in the United States that would spread to the global economy. Nonetheless, countries would still have to reach agreement on common remedies, objectives, and instruments.

With a return to stable balances of payments, trade disputes would become less likely and international trade would undoubtedly become somewhat freer.

Of the three scenarios, it is the last that would offer Canada the best opportunity to diversify its foreign economic relations. Unfortunately, the chances of this scenario coming to pass are remote.

The above scenarios raise a number of policy issues for the members of the triad and for Canada.

Some Policy Issues

Let us begin with a hypothesis: the main issues in international economic policy will not change very much during the remainder of this century, although the nature of specific problems will continue to evolve.

The two main macroeconomic issues will remain:

- reducing trade imbalances between the developed countries and controlling exchange rates between the major currencies; and

- handling Third World debt, particularly that of Latin America.

From the microeconomic point of view, conflicts will centre on:

- international trade in agricultural products;

- development of high-tech industries; and

- opening up service markets.

Difficulties connected with the more traditional industries will likely be less vexing, while oil will only become a problem again in the early part of the next century.

However, the geoeconomic context of the above issues may change on two points:

- first, within the triad, there are two possible configurations: an asymmetric one, whereby the United States continues to play a dominant role with respect to Japan and Europe; and a symmetric configuration, whereby the European Economic Comunity grows stronger and relations between Europe and Japan intensify; and

- second, at the international level, the influence of developing nations, particularly Asian NICs, will probably increase significantly, and these countries will have something to say on issues involving international trade and balances of payments.

For Canada, then, the international environment will be defined by:

- the consequences of the free-trade agreement with the United States, which will lead to closer relations between the two countries and economic gains for Canada at the price of adjustments;

- increased international trade with the Third World, particularly Asian countries; and

- the need to continue Canadian assistance to the poorest countries of the world, notably sub-Saharan Africa.

Four questions remain unanswered: 1) What courses of action are open to the Canadian government should the United States adopt a protectionist policy stance? Will Canada follow the U.S. lead and reduce its Asian imports? 2) Given the fluctuations scenario, what will be the impact of wide swings in the value of the U.S. dollar on the Canadian economy? 3) An asymmetric configuration of the triad would lead to less close relations between Canada and Europe, but what might be the consequences for Canada of a symmetric configuration? 4) Finally (and perhaps most importantly), what role will the exportable service industries and fast-growing high-tech industries play in the Canadian economy of the future?

Commentary by Gilles Paquet

> If you have
> only a hammer,
> then all problems
> tend to look like nails.
>
> *Bob Garratt*

Jacques Lesourne has sketched a vivid picture of the world economic environment of the year 2000. The role assigned to the *contre-rapport* is to comment on the suggested scenarios, to show the place of Canada in these contexts, and to suggest a Canadian perspective on this environment, without invading the territories assigned to specialized sessions or pre-empting the discussions on sectoral dimensions or policy challenges in other blocks of the conference. Ours is not the task of developing detailed blueprints, but only to sketch a broad map of the circumstances of Canada in the world economy of the year 2000.

Such mapmaking requires a few identifiable signposts, a compass, and a capacity to ascertain where one stands. From the start, one must also choose between two philosophies of cartography: *type I cartography* – "if in doubt, leave it out" – or the less orthodox *type II cartography* – "if in doubt, show it prominently" [Schumacher, 1977]. Given the primitive nature of our compass, the ill-defined nature of the signposts we have and the uncertainty as to where Canada stands now it has appeared safer for navigation in the turbulent times ahead to adopt the type II style of mapmaking.

The next section extracts a few key signposts from the Lesourne report. The section "Canada within These Circumstances" suggests a view as to where Canada stands today, while the section "Canada as an Aging Socio-Economy: A Meso-Analysis" uses a primitive meso-economic compass to spell out some of the mappable features of Canada in the world economy of the year 2000. The section "A Case for Managed Trade" then hints at why a managed trade scenario should be elected and how it might be played out.

Some Signposts Suggested by Jacques Lesourne

Jacques Lesourne's report is in two parts. Part I is a subtle analysis of history, trends, visions, scenarios, and policy issues aimed at throwing some light on the shape of the world economy of the year 2000. Part II (the appendix) is a detailed statistical analysis of the comparative advantages of Canada in the world economy through an examination of the structure of external trade flows sectorally (90 categories, Figure 3-3) and geographically (32 zones, Figure 3-4).

Our attention will be focused very much on Part I. The trends identified in Part II are useful raw material for sectoral/regional analyses, but working with this particular geotechnical grid may not provide results as richly suggestive of the shape of the Canadian economy of the year 2000 as is presumed. As economic activity dematerializes worldwide and, therefore, as the process of location of economic activity frees itself from many of the physical constraints that used to prevail, the comparative advantages of a country come to be defined more and more by a changing mix of inherited geotechnical constraints *and* designed institutional features such as market structure, administrative and regulatory arrangements, and so on. In

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This work was done while the author was holding an appointment at the Institute for Research on Public Policy. The help of the Institute is gratefully acknowledged. The analysis, results, and opinions presented do not necessarily reflect the views of the Institute. The help of A. Burgess, J. E. Denis, and M. Racette is gratefully acknowledged.

the rapidly changing circumstances between now and the end of the century, the institutional/organizational features are likely to play a dominant role in the dynamics of location of economic activities. At the beginning of this transition period, it might therefore be unwise to freeze our view of Canada's comparative advantages on the basis of a rearview-mirror image of Canadian trade over the last decades [Harris, 1985; Brander in Krugman, 1986; Paquet, 1989*a*].

"Tendances lourdes"

Professor Lesourne has identified a number of important stylized facts:

1 The 1970s as shift years between a stable high-growth postwar period and the present unstable slow-growth regime for the world economy.

2 A mutation in the world structure of production, in the growth experiences of the different regions of the world, and in the intensity of economic integration and interdependence in the world economy in the post-1970 period.

And five trends:

1 A globalization of the world economy which heightens the degree of interdependence and limits the margins of manoeuvrability of the nation states.

2 A crystallization of the world economy into a number of blocs dominated by core economies.

3 A diversification of the Third World: separate economic experiences leading to quite different regimes and performances.

4 A shift in the technological paradigm away from simple changes in products and processes towards technical revolutions that trigger the emergence of entirely new sectors of activity and modify the interface among technology, economy, and society.

5 A world population growth and reshuffling: a demographic explosion in the South, rapid urbanization of the world, relatively smaller and older populations in the North being confronted with massive migration from the South to the North.

With these threads, Professor Lesourne weaves an image of the world economy of the year 2000 structured around four main poles located in the United States, Japan, the EEC, and the Soviet Union; around these poles, the many differentiated fragments of the developing world (China and India, East and Southeast Asian countries, Latin America, North Africa and Western Asia, and Africa south of the Sahara) search for ways to partake in the economic life of one or more of the central networks.

The flow of goods and services within and between these zones is predicted to increase dramatically; it has already reached the level of full *mondialisation* in sectors like financial and consulting services.

Scenarios and Issues

On this broadly brushed background, Professor Lesourne has examined the possibility of the world economy drifting towards *more or less openness* of national economies *and/or* towards *more or less international economic cooperation*. The three plausible scenarios analysed by Jacques Lesourne are presented as S-1, S-2, and S-3 in Figure 3-1.

Scenario 1 (greater openness of national economies without economic cooperation) is considered the most likely according to Professor Lesourne. This would entail a world economy plagued with much instability: balance-of-payments disequilibria and volatile exchange rates, the neuralgic debt problem of developing countries as a destabilizing force, the development of North-South "economic warfare" trade, and so on.

The protectionist scenario (scenario 2) was regarded as the most likely 10 years ago [OECD, 1979] but is given a slightly lower probability these days; the scenario of cooperation (scenario 3) is a distant third; the no-name scenario 4 is regarded as implausible.

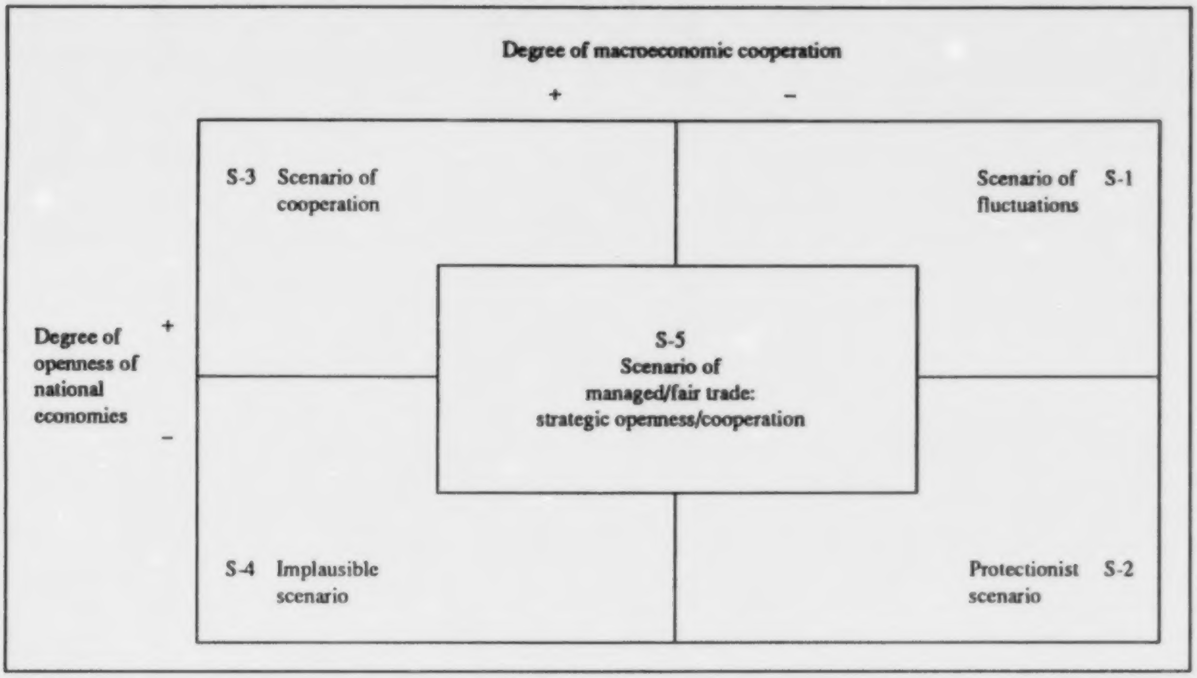
Canada within These Circumstances

Professor Lesourne does not work out in great detail the dynamics and the implications of his most probable scenario. This was not part of his mandate; however, the dynamics of the world economy, if scenario 1 is effectively played out, would suggest that a fifth scenario is likely to develop – a scenario of "managed/fair trade."

This scenario 5 would result from a combination of forces pressuring the system to find a way out through a narrow corridor between protectionism and cooperation. An open world trading system would emerge, but one with rules allowing governments to engage in strategic arrangements likely to loosen "the neo-mercantilist collection of

Figure 3-1

Different Scenarios of the World Economic Regime, Year 2000


Degree of macroeconomic cooperation
+
–
S-3 Scenario of cooperation
Scenario of fluctuations S-1
Degree of openness of national economies
+
–
S-5
Scenario of
managed/fair trade:
strategic openness/cooperation
S-4 Implausible scenario
Protectionist scenario S-2

bilateral contracts" – an expression used by Charles McMillan – now parading as an open world trading system, while preventing them from adopting measures violating certain norms of fairness [McMillan, 1988].

The central forces fuelling a move in the direction of managed/fair trade are of two sorts: (a) the development of the information economy and of new technologies (trading in goods is becoming relatively less central and trading in services, knowledge, and information is becoming pivotal) which are a great source of dynamic external economies [Dosi, et al., 1988]; and (b) the emergence of a balkanized but hierarchical and regulated world economic system (and with it, the growing need to take into account the different socio-economic rules of the game in different countries or regions of the world) with its techniques of profit-shifting and other manipulative arrangements [Beaud, 1987].

Forces A are generating heightened instability and putting to a test the capacity of markets to act as effective coordinating mechanisms in a knowledge-based economy; Forces B are attempting to modulate or minimize the impact of this instability by constructing non-market coordinating mechanisms. Since there is a real danger that Forces B feed a vicious protectionist circle, a new deal is likely to evolve – one creating a world order regulated by a new set of rules.

Scale Economies, Instability, and Managed Trade

In a knowledge-based economy subject to accelerating change, new technologies make increasing returns to scale more likely in the whole firm as many managerial diseconomies of scale are removed. These forces trigger: 1) the emergence of world-scale institutions taking advantage of those informational economies of scale and the transformation of the workplace into a one-unit telecommunication network; 2) the increase in the "productive velocity" inside national economies by dramatically improved mobilization and utilization of resources; and 3) as a result of the first two factors, the economic system expands transnationally: world production sets in, ideas cross borders more easily than goods or services and generate additional trade flows – but this expanded system is becoming more unstable and more sensitive to disturbance [Porat, 1982; Chichilnisky and Heal, 1986; Paquet, 1987*a*; Dosi, et al., 1988; Estabrooks, 1988].

The consequences of this drift are threefold:

1 An increase in the importance of international trade: barely 10 per cent of the GNP of industrialized countries in 1970, it has now reached twice that size; there has also been a dramatic reallocation of trade flows: between 1970 and 1985, the share of manufactured products in the exports of the South to the North rose from 22 to 55 per cent [Stoffaës, 1987].

2 This international trade explosion – and the worldwide international financial flows that are 40 times greater than merchandise flows – have tipped the balance between national and international activities: *l'internationale commande, le national suit* [Stoléru, 1987]; indeed, the very notion of Canada's "national economy" acquires a certain haziness when it is realized that 58 per cent of industrial production on Canadian territory is controlled by foreign groups, and that, on the world scale, half the world trade is performed by multinationals and 30 per cent is intrafirm trade [Leblond and Paquet, 1988].

3 The world economy has crystallized in a series of communication nets creating a variety of competing organizational networks – national, international, multinational, and worldwide [Beaud, 1987]; this hierarchy of superimposed systems where xeno-money and transnational flows rule the roost has generated a balkanized world economic system within which the rules of the economic game vary widely: in one quarter of this network, the game is played by the rules of the Anglo-American system (United States, United Kingdom, Canada, Australia, and so on); in another third, the rules are those of the mixed economy of Europe; in some 12 per cent, the rules are those of centrally planned economies; in another 13 per cent, the rules of plan-driven economies apply (Japan and South Korea); and the remaining 15 per cent of the trade game is played in the chaotic world of developing countries where few rules apply. As a result, almost three quarters of world trade is conducted under rules that have little to do with Anglo-American rules [Choate and Linger, 1988].

In these circumstances, a naive free-trade strategy relying exclusively on unaided markets is unlikely to be a panacea; what is needed is active management of trade not only to ensure fairness – in an increasing returns situation in the international economy, all the gains from free trade may accrue to one partner – but to ensure market clearing and Pareto efficiency [Chichilnisky and Heal, 1986].

Canada's Recent Gambit in the World Economic Game

Canada has a long tradition of managed trade. Canada's protectionist policies between the 1870s and the 1930s have deliberately attempted to harmonize physical comparative advantages with policy goals (industrialization, population growth, and so on). Since World War II, Canada has progressively abandoned the use of the blunt instrument of protectionism per se, but has crafted, on an ad hoc basis, a number of strategic arrangements like the Auto Pact with the United States: selected trade restrictions geared to support, build, or bolster some national advantages/preferences. It can be argued that arrangements like the Auto Pact have generated more trade than no restriction at all. Japan has also made good use of this sort of approach [Balassa in Giersch, 1987].

Yet Canada does not appear to wish to develop, at this time, a deliberate and comprehensive managed-trade policy. This is due to some general skepticism in a large segment of the population about the possibility of developing an industrial strategy, but also to a concern about the feasibility of such a strategy given the high degree of foreign control of the Canadian economy and the balkanization of the country's economic governance. The managed-trade option has not been categorically ruled out in a policy statement: it got played out in the form of two decades of neglect on the trade policy front.

This choice became less latent in the final moments of the Tokyo Round. Rodney Grey, the Canadian representative at the Tokyo Round, vented his frustration when he came back from the negotiations claiming that Canada had been acting as a "boy scout" at the Tokyo Round and had not been able to craft a coherent trade strategy in the face of hard bargainers across the table. Grey was to resign shortly afterward.

The growing dependence of Canada on the American economy generated concerns in the 1950s and 1960s mainly because of the restrictions it imposed on the management of the Canadian economy, but by the 1970s, a sort of resignation would appear to have set in. In the 1980s, the very notion of managing the Canadian economy would appear to have become a dirty word – the M-word – for it has ceased to be an alternative seriously debated in the forum.

Representing hardly more than half of 1 per cent of the world population and accounting for slightly more than 1 per cent of world output, Canada would appear to have chosen to "free ride" on the world economy. Its only new initiative in the 1980s has been to refocus the framework for trade relations to bring it in line with the new U.S. posture [Riedel in Giersch, 1987]: from a central emphasis on the multilateral framework, in which Canada had hoped to secure the right mix of opportunities and protections, to a gamble on bilateral negotiations with the United States.

Canada as an Aging Socio-Economy: A Meso-Analysis

The forces likely to be at work in Canada between now and the year 2000 are revealed more sharply when one partitions the Canadian socio-economic game into separable subprocesses or subgames. This approach has been used to analyse the Canadian socio-economy of the early 1980s [Paquet, 1980].

This meso-analysis identifies six basic subprocesses: demography, production and exchange, finance, the ecology of social groups, the state, and finally the distribution of income and wealth. From a composition of these six subgames, an image of the Canadian socio-economy may be constructed. This is analogous to the combination of scores of different musical instruments into a complex musical piece or the reconstruction of the dynamics of the human body from a simultaneous account of the different subgames systems: blood, nerves, muscles, bones, and so on.

Demography

Since the mid-1960s, Canada's population has grown more slowly and has been aging. The Canadian population in the year 2000 should be around 30 million. At the time, it should be in the middle of a long transition leading from a situation in 1976 when 16 persons were aged 65 or over for every 100 persons aged 20 to 64, to a dramatically different situation in 2026 when there will be 32 persons of retirement age for every 100 persons in the work force [Beaujot and McQuillan, 1982].

The greying of Canada is likely to translate into an increase in the average level of experience, but also into a decline in the degree of entrepreneurship and risk-taking. At the micro level, this distortion of the Canadian age structure should lead to some shortages of certain skills. More importantly, at the macro level, an *age structure* imbalance will ensue that will require correction either by a natalist policy – unlikely to be effective – or by an immigration policy that will be taxing the absorptive capacity of the country and might erode yet further the fragile national consensus.

Despite the relatively good measured growth performance of the Canadian economy, the demand for labour has not grown as rapidly as had been anticipated. The consensus is that this trend is likely to continue [Cohen and Shannon, 1984]; moreover, the excess supply of younger workers has led to a dramatic deterioration in the relative wages of this cohort over the last decade. The duality of wage structure between *older and younger* workers is likely to continue.

Labour markets are such in Canada that *wage determination and employment levels* are generated by processes that are often somewhat disconnected because of extensive regulations. Therefore one cannot expect an adjustment in the real wage rate to ensure a zero labour-supply surplus. A large portion of the labour market is sheltered by a variety of protective devices while another portion of the work force is starkly exposed to international competition: difficult conditions in the latter market do not prevent continued wage increases in the former. Interregional mobility, though high, is unlikely to compensate for these other rigidities in the labour markets.

Finance

The financial system has undergone a major transformation over the last few years: the four pillars (banks, insurance and brokerage firms, and trust companies) are in the process of merging. Transnationally, financial flows have increased geometrically. Already the domestic regulatory framework is becoming eroded: 1) by the need to relax control on one institution or another to allow "workable competition" – this is the cost of deregulation; 2) by squabbles over jurisdictional authorities as federally and provincially regulated institutions enter into competition; and 3) by the growing presence of entirely uncontrolled transnational financial networks on the Canadian financial scene [Kierans, 1984]. This globalization of financial markets has already generated additional instability and a higher degree of competition. Any national border within the world financial system has been effectively abolished: a global 24-hour-a-day electronic marketplace, with a volatility and fragility difficult to fathom, is now in place. In October 1987, we saw this unregulated global marketplace flexing its powerful muscles.

Canada has taken a major place in this new financial world order through its large institutions, but it is now on the merry-go-round without much possibility of unilaterally influencing this global marketplace. The debt crisis of the early 1980s has shown that even large financial institutions have feet of clay. There is much optimism that the concentrated Canadian financial sector will fare well in the newly liberalized Canada-U.S. market, but this remains to be seen.

The powers of the large U.S. banks on the Federal Reserve are not quite the same as those of the Canadian chartered banks on the Bank of Canada [Greider, 1988].

Production and Exchange

With the shift from an energy-intensive to a knowledge-intensive economy, the service sector has gobbled up the bulk of the active population, but it has become something of a weasel-type sector: the conceptual basis necessary to analyse this sector exists but the data necessary to pursue the analysis do not [McLaughlin, 1966; Grubel, 1987]. A new conceptual framework is needed to analyse this mutation. Discussions in over-aggregate terms only – primary, secondary, and tertiary – are clearly inadequate, either for a meaningful analysis or for a definition of a strategy of selective development.

Any partitioning of these aggregate sectors into smaller units reveals that they face different threats and opportunities requiring tailor-made approaches and strategies [Voyer and Murphy, 1984; D'Cruz and Fleck, 1985]:

1 The degradation of the Canadian agriculture resource base is a source of concern, but it is still argued in some quarters that Canada should try to double its agricultural output over the next 20 years. Moreover, half the agricultural products are still entrusted to marketing boards – organizations that are not efficiency-minded; a slimdown strategy and an orderly shift to market rules are in order, but in conjunction with the development of a knowledge infrastructure to increase the level of competence and sophistication of a sector that is now evolving into biotechnology.

2 In the commodity sector (pulp and paper, wood products, iron and steel, coal and lignite, and so on) much more could be done to improve the harvest through better management; but higher labour costs and heightened environmental concerns are bound to hamper further development. Canadian producers are led by government to increase capacity, but are often faced with monopsonized foreign markets; this results in asymmetric market power and, as a result, Canadian producers do not extract a very high price from the foreign monopsonists. What is required is not only lower costs and increases in productivity, but a mechanism to control capacity expansion and industry bureaus to deal collectively with the foreign buyers; this could be a tool of trade management.

3 In sunset sectors (leather, fabric, clothing, and so on) what is called for is a strategy to gradually get rid of fabrication, in which Canada is not generally cost-effective, and allow it to be done more cheaply elsewhere, while aid is given to promote aggressive development at the design and conception phase. Again state intervention might be essential.

4 In the high-tech sector, a strong dose of realism and modesty about the Canadian contribution and a recognition that the emphasis might more usefully be put on certain niches only in the production of new technology, while dramatically increasing efforts to disseminate better existing technology.

In an economy like Canada's with a high degree of concentration and foreign control, it would appear that the messages emanating from the external environment and translating into loss of market share are not picked up quickly and that, when they are, the political and administrative capability to mount policies going beyond knee-jerk protectionism is not high. The degree of national dissensus in economic matters is such that even efforts to build national consortia to compete more effectively in foreign markets have proven fruitless.

The Ecology of Groups and Their Motives

The degree of dissensus on economic policy matters echoes a high degree of dissonance in Canadian society. What used to be regarded as a *mélange* of regional, ethnic, linguistic, social, and occupational groups forming an open and pluralistic society has degenerated into a fragmented, divided, balkanized, and disjointed society [Paquet, 1980].

This is the consequence of a number of factors:

1 The old/young generations cleavage and the frustrations of the baby boomers becoming aware of the fact that they cannot expect access to the level of economic welfare their parents had achieved.

2 The blossoming of regional consciousnesses and province-building policies as regional coalitions formed to make use of regional governments as policy agents in the face of a decline in the level of real income.

3 A degree of socio-political entrepreneurship on the part of social groups perceiving that their level of gratification is below what they consider warranted [Paquet, 1987*b*].

4 Language, race, gender, and so on have become non-tariff barriers to trade between groups in Canada and an occasion to mount yet more distributional coalitions to ask for privileges.

5 The easing of immigration laws, together with the current multicultural policy putting emphasis on preserving and strengthening the ethnic identity of new migrants, have sharpened the difficulty of smooth absorption of the new citizens into Canadian society. This has raised particular problems within certain regions and cities as the ethnic/linguistic distribution was dramatically modified [Paquet, 1989*b*].

This demand for protection has been energized by the growing global instability. It has translated into the formation of an ever-larger number of narrow interest groups determined to demand from the state some protection, or the assurance of specific securities. Canadian society has broken down into a number of bargaining societies focused on narrow issues, keen to confront the system with exorbitant demands and with little concern about expending resources for the collectivity. This can only result in a situation of "conflictive equilibrium" by the end of the century: each group realizing that it cannot rid the system of its opponents must learn to live with them, and yet does not know how [Crozier, 1970].

Canadians would appear to have lost confidence in the possibility of increasing their welfare through greater social cohesion. The dream of unity in diversity has been replaced by a multiplicity of fragmented patriotisms and local commitments. While this can be said to represent a long-standing feature of Canadianness [Paquet and Wallot, 1987], the growing turbulence of the 1970s and early 1980s would appear to have substantially increased the degree of anomie and weakened the resilience of the non-market norms underpinning the functioning of the Canadian market economy [F. Hirsch, 1976]. Consequently, not only has adjustment proceeded more slowly than necessary, but a growing sense of distrust has developed in the population vis-à-vis the very states from which protection is sought. A motivation crisis, already noted in the early 1980s, has deepened: a growing gap between the need of motivation built in the production process and the motivations supplied by the socio-cultural system.

State

The multifaceted Canadian state has responded to this sort of cacophony of demands for protection by a multitude of special arrangements. This has generated important unintended consequences. The growing globalization and interdependence have triggered a sufficient increase in relevant uncertainty to warrant some regulatory response. But the state has been quickly overloaded and has found it difficult to design regulatory instruments capable of evolving with the speed of changing circumstances. This has led the different levels of government to compete in granting protection to complaining groups [Paquet, 1978].

The process of balkanization has also been accelerated by stronger regional bureaucracies and more aggressive province-building activities by suppliers of protection when the disappointment with broad national policies became apparent in the 1970s and early 1980s. The external challenges that might have triggered cooperative ventures (globalization, the Canada-U.S. Free-Trade Agreement, and so on) have led the provinces to become less and less willing to cooperate.

Moreover, the multivocal demands by an ever-more differentiated population have led to major changes in the very rules of the overall game: governments have been led to provide ever-more important guarantees and protections to their citizens against state action that might be detrimental. The 1982 Charter of Rights and Freedoms is a case in point: it has sanctioned a great variety of new rights – fundamental freedoms, democratic rights, mobility rights, equality rights; it has raised in the Canadian consciousness the importance of *differences* – race, gender, language, disabilities, and so on – and it has established a basis for a new notion of citizenship. As such, the Charter of Rights and Freedoms establishes a new basis from which Canadians can protect themselves from their governments, but it also gives a greater salience to race and ethnicity, culture and communal identity, in discussions about the Canadian identity [A. C. Cairns, 1988].

The combination of heightened external threats (globalization, and so on, and heightened internal impediments to action through balkanization and scleroses of all sorts) has impaired considerably the capacity of the state to assert the sort of leadership one might have wished in navigating those turbulent waters. As a matter of consequence, there have been calls for a reduction in the size of governments and in the role of the state. Yet, when the rhetorical noise is screened out, there seems to be a longing for a leaner but not for a less active *strategic state* [Navarre, 1986].

Distribution

One of the unintended consequences of this dialectic between demanders and suppliers of protection in Canada has been a certain autonomization of distribution issues [Hardin, 1974]. Questions of justice – social, economic, political – have generated de facto distribution goals in the absence of any consideration for the production or source of wealth to be redistributed. Over the quarter of a century between World War II and the 1970s, concern about distribution has come to overshadow concern for growth and productivity. The oil shocks of the 1970s and the major recession of the early 1980s may have brought back concerns about employment and economic growth, but it is fair to say that distributional issues again became paramount as soon as the worst of the recession was over.

On no other issue is the immense dissensus of Canadians more flagrant. Our heterogeneous population has become a litigious society bickering over the sharing of national wealth, provincially, regionally, between linguistic groups, between management and labour, and more recently between genders and across minorities of diverse sorts, in the name of justice and fairness. The bargaining has been conducted in a most acrimonious atmosphere and is bound to be yet more acrimonious as slower growth sets in.

The proliferation of *just causes* for redistribution, backed with charters of rights when convenient, has generated much rent-seeking activity and an increased amount of dynamic conservatism. Inequality of income and wealth in the post-1945 period has remained quite stable. More recently, it has become apparent that neither the market nor the state institutions would resolve the many dimensional problems of redistribution. This has led to an ever-larger number of issues becoming bargaining issues, i.e., issues resolved by various forms of negotiation without specific rules or time limit, and without arrangements to secure a decision if there is no agreement between the parties involved. This sort of social-decision system, given the institutions in place, is inefficient in the sense that often

> it tends to distort the information basis for decision, it tends to use or waste resources in the process, particularly by delaying decisions for reasons which are not technically necessary, it will more or less frequently lead to breakdown and failure to realize the potential gains, and threats will sometimes be carried out [Johansen, 1979].

* * * * *

As a general diagnosis, it would appear that Canada, despite its young age as a nation, is already an aging economy. Fifty years of relentless rule making and coalition building have injected the Canadian socio-economy with an incapacity to adapt and transform. Moreover, the capacity of distributional coalitions to play the game of competitive federalism (i.e., to play one level of government against the other to obtain a sanction of their vested interests) has generated a more resilient set of *positions acquises* than might have otherwise prevailed. Consequently, the Canadian socio-economy is much more fractured and less socially cohesive than most economies of its size. As a result, it is naive to presume that sheer openness will result automatically, as so many hope, in the general productivity and efficiency increases that speculative analyses are led to suggest. Vested interests are likely to stop or slow down the adjustment process [Kindleberger, 1978].

The channel through which openness of economies and competition generate efficiency and growth is the dismantlement of distributional coalitions [Olson, 1983]. With increased instability, the distributional coalitions are going to develop additional arguments to demand a degree of reinforcement of protection. To the extent that a greater openness of the economy can be interpreted as threatening the fabric of Canadianness, one might even expect political entrepreneurs to promote the creation of new distributional coalitions. One has already seen signs of this in Ontario as a result of the Canada-U.S. free-trade initiative.

The fundamental issue is the demarcation between legitimate and illegitimate activities of this sort and the capacity to delegitimize those actions built on false claims. But it is going to be extremely difficult to draw such a line of demarcation in the absence of a broad trade framework providing the basis for an appreciative system: "a set of readinesses to distinguish some aspects of the situation rather than others and to classify and value these in this way rather than in that" [Vickers, 1965]. This cannot be distilled without a multilogue.

This appreciative system would determine what is legitimate; for example, that it is legitimate to preserve certain primary securities because they are necessary for entrepreneurship to flourish [Easterbrook, 1954; Paquet, 1987*b*]. If excessive competition is feared or generated and such securities are under siege, one may expect much legitimate pressure to develop in support of constructing or reconstructing such securities. The danger of allowing such a knee-jerk reactive process to shape or fashion the Canadian policy stance is that instead of being forward-looking and trade-promoting, it is likely to translate simply into protective devices for entrenched interest groups.

Under prevailing circumstances in Canada, one may expect a great lack of cohesion, a multitude of ad hoc arrangements, a hardening of distributional coalitions, and a very slow and painful structural adjustment of the Canadian socio-economy. This, despite the fact that Canadians have the basic strengths to outperform competitors in a world where sheer dimension is likely to become less and less powerful an asset.

The choice facing Canada is whether it will manage its trade proactively and intelligently or whether it will manage it reactively and backwardly. This choice will depend on two dominant factors: the degree of instability in the world economy and the degree of dissensus of the Canadian administrative state. The greater the worldwide instability, the greater the need for a strategic economic policy initiative on the trade front. The more critical the instability and the lower the degree of dissensus within Canada, the greater the likelihood that some concerted action will evolve. On the other hand, the greater the balkanization of Canada, the higher the degree of dissensus.

A Case for Managed Trade

The case for managed trade, i.e., for an *offensive strategic trade policy and targeting policy*, can be made at the theoretical level. A whole literature has recently developed the argument that, with increasing returns to scale for domestic firms and imperfect competition, targeting as an offensive strategy (i.e., "creating" one's own winners) is a valid strategy for open economies. Export subsidies, R&D subsidies, tariffs, quotas, or pre-emptive threats of any of the above – depending on the assumptions of the models in vogue and on circumstances – are now theoretically respectable policy options: "it is now ignorant and dishonest to say there can be *no* case for targeting" [Portes in Giersch, 1987].

The *stylized facts* presented in the sections "Canada within These Circumstances" and "Canada as an Aging Socio-Economy: A Meso-Analysis" (the nature of the evolving international economy and the arteriosclerosis plaguing the Canadian socio-economy), together with the impressive example of Japan, would appear also to militate in favour of such a strategy for Canada in the year 2000. An effort to frame trade decisions differently *and* to promote actively some learning and exploration of creative possibilities by Canadians is likely to generate the necessary consciousness in the population of the problems lying ahead, and the will in politicians to act on this front.

This a priori argument is not meant to justify any or all claims for defensive protection – and the demarcation problem may be an awesome one – but to suggest that there is a *prima facie* case for managed trade. This is not the place to present in detail the strategy Canada might develop, but one can at least suggest: 1) what managed/fair trade might be as a strategy, and 2) in what ways one might be able to evolve such a strategy.

What Is Managed Trade?

Managed trade is not simply another name or a softer version of the defensive protectionist scenario: protectionism prevents specialization and limits trade, managed trade encourages specialization and allows trade to expand. A managed-trade strategy would amount to extending existing sector-specific policies of industrial targeting to the international arena, but would also limit considerably the permissible degree of discretion of national governments in order to ensure a workable and fair economic order.

The central feature of managed trade or tailor-made trade is a recognition that Canada lives in an "nth-best" world and that simple efficiency rules need not carry the implications they would have in a first-best world. Second, it underlines the fact that the fixation of economists on static allocative efficiency does not entail that the world is or should be ruled according to this single criterion. There are many important dynamic and learning dimensions to efficiency, and protection may help a domestic firm transform from a passive player in a Cournot-type game to a Stackelberg leader [Portes in Giersch, 1987]. There may also be distributional features calling for government intervention, as in the case when the total gains from trade may accrue to one's trading partner [Chichilnisky and Heal, 1986].

It can be argued persuasively that under present international circumstances, the likelihood of a fair distribution of gains from trade is low, and that some efforts should be spent on somewhat constraining the free market in the name of a fair outcome. Many of the concerns under this rubric were widely discussed during the free-trade debate under the clumsy heading of "level playing field." Much of this discussion was not very helpful, however, because it presumed that were the fields levelled – whatever this might mean – the unaided free market would bring about a universally desirable solution.

Our argument is that one has to seek a solution that is *feasible*, *acceptable*, *stable*, and *implementable*, i.e., a solution that is both efficient in the broadest sense of the term but also fair, i.e., envy-free.

This can be done by using an array of strategically selected formal and informal barriers to trade (tariffs, nontariff barriers, procedures, suasion, standards, public procurement, subsidies, promotion, or regulations of all sorts) to help create the winners; i.e., to provide comparative advantage through economies of scale, learning, and so on. While many have bluntly stated that this approach is wrong-headed [Eliasson in Giersch, 1987; Weiss, et al., 1988], the extraordinary success of some countries in using this approach [Balassa in Giersch, 1987] leads one to be at worst agnostic and at best hopeful about this approach.

An envy-free or fair solution is not easy to achieve. It requires the institutional equivalent for countries of the sort of rule arrived at when two persons wish to share a cake fairly: A cuts and B chooses. Arbitration processes using final-offer selection have been shown to lead in this direction [Baumol, 1986]. There have already been suggestions as to the ways in which such processes might get carried out in trade-related issues [Baldwin in Giersch, 1987] and theoretical developments in arbitration matters promise to lead the way [Crawford, 1980]. At the very least, one might suggest that this sort of approach be used by the Trade Pact Commission, which is charged with resolving disputes between Canada and the United States. This would provide a way out of the present quagmire of "bilateral protectionism" between the two countries [Pasquero, 1988].

The Road to Managed Trade

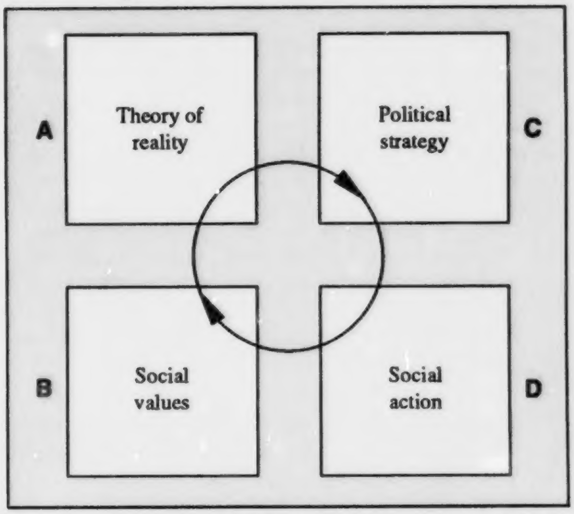
It cannot be assumed that a managed-trade strategy can be arrived at unilaterally from the centre, courtesy of the technocrats. The bureaucrats have only a small portion of the information necessary to do so. Indeed, this information problem has been one of the main reasons why the agnostics have been so impressive in arguing that targeting was impossible. An approach building only on central planning is bound to fail and it has, many times in many places.

In the information socio-economy, the design of a managed-trade policy must evolve from interactive planning: it is the only path likely to be successful [Masuda, 1982]. This is the incontrovertible conclusion to which one is drawn when one realizes that the problem at hand is ill-structured.

In case of ill-structured problems, analysts must *learn on the job* about both the configuration of facts and the configuration of values, but they must also manage to learn from the stakeholders in the policy game and from the many groups at the periphery who are in possession of important *local knowledge*, for without their participation no meaningful policy can be implemented.

Figure 3-2

The Paradigm of Social Practice in Policy Research



SOURCE J. Friedmann and G. Abonyi, "Social learning: A model for policy research," *Environment and Planning* 8, no. A, 1976, p. 88.

Friedmann and Abonyi [1976] have stylized a *social learning model of policy research* to deal with these problems. It combines a detailed analysis of four subprocesses: 1) the construction of appropriate theories of reality depicting what is *feasible*; 2) the formation of social values, i.e., of what is *acceptable*; 3) the gaming that leads to the design of political strategies in defence of the *stable* and of the *implementable*; and 4) the carrying out of collective action, i.e., practical measures ensuring *effectiveness* in implementation. These four interconnected subprocesses are components of a *social learning process*: any change in one affects the others [Friedmann, 1979]. This paradigm of social practice in policy research is depicted by Friedmann and Abonyi, and here reproduced in Figure 3-2. In it,

> cognition is linked to the world of events via social action and the result of that action. The adequacy of a theory of reality and/or the political strategy is therefore dependent on the results of action and the extent to which these results satisfy the given social values [Friedmann, 1978].

Block B is the locus of dominant values that provide normative guidance either in the transformation of reality or in the selection of strategies for action. Theory of reality (block A) refers to a symbolic representation and explanation of the environment. Political strategy (block C) connotes the political game which generates the course of action chosen. Social action (block D) deals with implementation and the interaction with the periphery groups [Friedmann and Abonyi, 1976, p. 88]. Together these four subprocesses come to life in concrete situations.

Traditional approaches to policy research focus on attempts to falsify hypotheses about some objective reality according to the canons of scientific experimentation. This is too narrow a focus for policy research when the ground is in motion. For the *social practitioner*, what is central is an effort "to create a wholly new, unprecedented situation that, in its possibility for generating new knowledge, goes substantially beyond the initial hypothesis." The social learning paradigm is built on reflection-in-action, dialogue, mutual learning by experts and clients, i.e., on an *interactive or transactive style of planning*:

> the paradigm makes the important epistemological assumption that *action hypotheses* are verified as 'correct' knowledge only in the course of a social practice that includes the four components of theory (of reality), values, strategy and action. A further epistemological commitment is to the *creation of a new reality*, and hence to a new knowledge, rather than in establishing the truth-value of propositions in abstraction from the social context to which they are applied [Friedmann and Abonyi, 1976, p. 938; Schon, 1983; Paquet, 1987*b*].

Designing a managed-trade strategy for Canada is likely to be a mammoth problem between now and the year 2000. As we have shown in earlier sections, the *defensive* protectionism approach built on the existing quilt-like Canadian socio-economic fabric is well entrenched and likely to remain very influential. But the proposed social learning strategy is likely to be effective in showing that in turbulent environments, the fate of competitors is often positively correlated. This should be an easier process to sell to Canadians because there is now both some sound theoretical basis on which to erect such an *offensive protectionist* strategy and some institutional reasons to believe that in the case of Canada, such a strategy is superior to both a naive free-trade approach and a defensive protectionist policy.

Conclusion

We have carried the discussion far from the point of departure suggested by Professor Lesourne. Yet, it is clear that in looking at the Canadian economy in the world economy of the year 2000, both the texture of the international environment and the fabric of the Canadian socio-economy had to be taken into account.

The evolving international economy calls for cooperation, but such cooperation needs to be elicited. There is no reason to believe that it will evolve organically. Indeed, strategies to manage trade may be the best route to cooperation. Even a simple tit-for-tat strategy has proven quite effective in generating cooperation [Axelrod, 1984]. Contrary to what has been echoed by textbook economists, such strategies are not a threat to the world economic order, but rather a response to the imperfections of the market as coordinating mechanism [Pinder, 1982]. Finally, we have shown that it is unlikely that the Canadian socio-economy, as presently constituted, has the capacity to transform itself quickly as it should and without much learning and prodding. The subtle action of the strategic state is warranted: if a trade strategy is not sufficient, it is clearly necessary.

We have sketched a way to initiate some social learning in this area: as soon as some learning occurs by all stakeholders, an offensive trade strategy becomes possible; transactional planning is both the way to learn and the way to evolve such a strategy.

Some may find our pointers insufficiently clear; others will argue that the very nature of the country, described at length in the section "Canada as an Aging Socio-Economy: A Meso-Analysis," makes it unlikely that any such transactional planning shall be workable. Our sense is that it is well worth trying and that such a process would have at least the merit of putting squarely on the table some of the fundamental forces that are bound to be determinant for the fate of the Canadian economy of the year 2000. Even if the process were not to be successful in eliciting a consensus for a Canadian trade strategy, it would do much to educate Canadians and to enlighten arbitrators likely to render decisions pertaining to Canada on the sort of Canadian appreciative system that needs to be to be taken into account. It might even prompt the emergence of a "fairer" arbitration process. In any case, failing to do so and choosing a blind leap of faith into a free-trade world would be tantamount to refusing to learn: it may not only be socially disruptive for Canada, but may turn out to be also economically disastrous.

The road we point to may not be well travelled by textbook economists, but it is one recommended by the most thoughtful policy studies of the 1980s. If our *contre-rapport* can ensure that the managed/fair-trade option remains on the table when the Canadian economy plans for the year 2000, our quixotic enterprise may not have been entirely futile.

Appendix

Canadian Foreign Trade, 1967-86

This section will address three topics: the structure of Canadian foreign trade by product and by region between 1967 and 1986; how the origins and destinations of trade have evolved over the same period; and where Canada stands in terms of comparative advantages and specialization.

Figures were provided by the Centre d'études prospectives et informations internationales (CEPII).

Structure of Canadian Foreign Trade by Product and by Region

For the purposes of this section and the following, Canadian trade has been broken down into 26 categories and 15 regions, as follows:

– construction materials; iron and steel; non-ferrous metals; textiles; wood and furniture products; pulp and paper; publishing; miscellaneous manufacturing; mechanical products; precision instruments; electronics; electrical equipment; automotive parts; automobiles; vehicles; aeronautical equipment; chemical products; minerals; coal; natural gas; other energy products; grain; other edible agricultural products; non-edible agricultural products; food industry; others not covered elsewhere;

– United States; EEC (nine countries, excluding British Isles); British Isles; other Western Europe; Japan, Australia and New Zealand; South Africa; Latin America; Arab countries; Black Africa, Asian NICs; other Asian countries; Eastern Europe; China; and others not covered elsewhere.

Exact definitions of these categories and regions are provided at the end of the appendix.

Tables 3-3 through 3-6 present statistics on total exports for four representative years of the study period: 1967, 1973, 1980, and 1986, based on figures in constant U.S. dollars.

From these figures, a number of clear trends may be identified:

1 The rising export share of the United States over the entire period and the marked decline in the British share.

2 The lack of change in the list of major categories (vehicles as a whole, agricultural products, agri-food industry, pulp and paper, non-ferrous metals, minerals (ore), and energy), despite fluctuations due to sectoral structure or world market conditions, such as the wide variation in the export share of vehicles (although it doubled between 1967 and 1986), the percentage decline in minerals (ore) and non-ferrous metals, the falling shares of agricultural products and the agri-food industry, the rising share of energy products in 1980, followed by a slide back to 1973 levels, and a declining percentage of pulp and paper.

3 The pre-eminent position of the United States in the automobile industry, pulp and paper, natural gas, other energy products, non-edible agricultural products, and agri-food products; the growing number of destinations for minerals (ore) and non-ferrous metals (with declining U.S. shares); the role played by Western Europe, Japan, and Eastern Europe in grain exports.

Tables 3-7 through 3-10 are devoted to total imports. They cover the same period and their figures are also in constant U.S. dollars.

Some interesting developments can be identified from these tables:

1 The steady decline in the U.S. import share (although it remains dominant), the fall in the British share, the rise in that of Western Europe, the strong rise of Japan, the five-fold increase for Asia's NICs.

2 The rapid increase in the import share of electronic and chemical imports, the fall of mechanical and edible agricultural products, the wide variation in the share of automobiles as a whole (the high import and export shares of this sector reflecting the close integration of the Canadian and U.S. automotive industries).

3 The dominance of the United States in all import categories except textiles, miscellaneous manufacturing, edible agricultural products (grain excluded), and agri-food products.

The Pattern of Canadian Trade by Origin and Destination, 1967-86

Table 3-11 shows, for total exports, the variation index, by category, in constant U.S. dollars, using 1967 as the base year.

Canada's exports increased by a factor of 2.4 over the period:

1 Growth was especially vigorous in exports to the Arab nations (up a factor of 10.2) and to Asian NICs (up 11.9), and was better than the average for exports to the United States. Growth in exports to Western Europe was moderate (up 50 per cent overall) and exports to Britain were cut by half.

2 Growth was lower than average for agricultural and food products, minerals (ore), and metal products; it was about average for categories such as textiles, mechanical products, precision instruments, electrical equipment, and aeronautical equipment. Growth was buoyant for energy products, vehicles as a whole, chemical products, electronics, and miscellaneous manufacturing.

Table 3-3

Canadian Exports by Region and by Sector, 1967

(Per cent)

	United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
Construction materials	0.15	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
Iron and steel	1.31	0.09	0.20	0.03	0.02	0.10	0.02	0.26	0.00	0.01	0.00	0.05	0.00	0.00	0.00	2.08
Non-ferrous metals	5.45	0.61	2.40	0.26	0.59	0.13	0.12	0.24	0.00	0.00	0.04	0.24	0.00	0.02	0.00	10.11
Textiles	0.41	0.05	0.20	0.06	0.00	0.05	0.01	0.09	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.90
Wood and furniture products	0.86	0.06	0.29	0.01	0.01	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27
Pulp and paper	11.13	0.55	0.87	0.04	0.36	0.29	0.05	0.49	0.01	0.01	0.04	0.15	0.00	0.00	0.00	13.98
Publishing	0.11	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
Miscellaneous manufacturing	0.19	0.04	0.05	0.03	0.01	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37
Mechanical products	5.91	0.13	0.22	0.08	0.02	0.22	0.03	0.32	0.03	0.02	0.02	0.14	0.00	0.00	0.00	7.16
Precision instruments	0.59	0.12	0.12	0.05	0.01	0.03	0.00	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.00
Electronics (narrow definition)	1.11	0.14	0.10	0.03	0.14	0.01	0.00	0.09	0.01	0.00	0.00	0.06	0.00	0.00	0.00	1.70
Electrical equipment	0.51	0.03	0.06	0.01	0.03	0.03	0.01	0.11	0.01	0.01	0.00	0.09	0.00	0.00	0.00	0.90
Automotive parts	3.07	0.02	0.01	0.03	0.00	0.13	0.04	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	3.46
Automobiles	8.39	0.01	0.00	0.02	0.00	0.02	0.08	0.24	0.03	0.00	0.00	0.01	0.00	0.00	0.00	8.82
Vehicles	2.14	0.00	0.00	0.00	0.00	0.09	0.03	0.23	0.00	0.02	0.00	0.07	0.00	0.00	0.00	2.60
Aeronautical equipment	2.13	0.08	0.07	0.05	0.00	0.03	0.01	0.08	0.01	0.04	0.01	0.09	0.00	0.00	0.00	2.61
Chemical products	2.73	0.25	0.50	0.09	0.14	0.16	0.03	0.27	0.01	0.01	0.05	0.06	0.02	0.00	0.00	4.32
Minerals	5.00	1.55	1.63	0.86	1.67	0.18	0.03	0.15	0.01	0.01	0.04	0.14	0.07	0.00	0.00	11.33
Coal	0.02	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
Natural gas	1.24	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30
Other energy products	3.84	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.87
Grain	0.14	1.10	1.22	0.26	1.07	0.00	0.14	0.23	0.04	0.01	0.02	0.67	1.40	0.78	0.00	7.08
Other edible agricultural prod.	0.61	0.25	0.70	0.11	0.32	0.00	0.00	0.10	0.01	0.01	0.01	0.00	0.01	0.00	0.00	2.14
Non-edible agricultural prod.	4.16	0.34	0.85	0.08	0.52	0.12	0.04	0.05	0.00	0.02	0.01	0.01	0.08	0.00	0.00	6.28
Food industry	3.53	0.25	0.90	0.10	0.11	0.05	0.02	0.73	0.02	0.06	0.02	0.11	0.00	0.00	0.00	5.89
Other sectors	0.23	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.37
Total – all products	64.97	5.69	10.43	2.22	5.19	1.68	0.69	3.95	0.23	0.25	0.29	1.93	1.58	0.80	0.09	100.00

SOURCE The figures were provided by the CEPII.

Table 3-4

Canadian Exports by Region and by Sector, 1973

	United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
								(Per cent)								
Construction materials	0.36	0.01	0.01	0.01	0.00	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
Iron and steel	1.22	0.12	0.08	0.04	0.02	0.02	0.00	0.15	0.02	0.01	0.00	0.02	0.01	0.00	0.00	1.70
Non-ferrous metals	3.71	0.62	1.22	0.22	0.34	0.05	0.00	0.16	0.03	0.01	0.08	0.09	0.00	0.32	0.00	6.83
Textiles	0.68	0.09	0.14	0.10	0.02	0.05	0.01	0.08	0.00	0.00	0.02	0.00	0.00	0.00	0.00	1.19
Wood and furniture products	1.15	0.09	0.22	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
Pulp and paper	7.34	0.72	0.65	0.09	0.39	0.20	0.03	0.44	0.03	0.01	0.09	0.10	0.01	0.01	0.00	10.12
Publishing	0.17	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
Miscellaneous manufacturing	0.36	0.04	0.08	0.02	0.02	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
Mechanical products	6.17	0.20	0.19	0.13	0.04	0.10	0.04	0.28	0.06	0.07	0.02	0.06	0.01	0.00	0.00	7.38
Precision instruments	0.40	0.09	0.07	0.03	0.01	0.03	0.01	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.73
Electronics (narrow definition)	1.31	0.14	0.23	0.09	0.04	0.03	0.01	0.09	0.09	0.03	0.11	0.06	0.00	0.00	0.00	2.23
Electrical equipment	0.50	0.04	0.04	0.01	0.01	0.02	0.01	0.09	0.02	0.01	0.00	0.03	0.00	0.00	0.00	0.79
Automotive parts	6.22	0.03	0.01	0.02	0.00	0.02	0.03	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50
Automobiles	10.67	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	10.79
Vehicles	2.29	0.01	0.00	0.15	0.00	0.01	0.01	0.08	0.04	0.04	0.00	0.02	0.00	0.00	0.00	2.66
Aeronautical equipment	1.23	0.08	0.10	0.04	0.01	0.01	0.00	0.07	0.01	0.02	0.00	0.03	0.00	0.00	0.00	1.59
Chemical products	2.52	0.18	0.33	0.07	0.12	0.11	0.02	0.19	0.03	0.01	0.05	0.11	0.00	0.01	0.00	3.75
Minerals	2.91	1.51	0.91	0.86	2.87	0.11	0.02	0.13	0.02	0.01	0.05	0.07	0.03	0.04	0.00	9.54
Coal	0.01	0.00	0.00	0.00	0.66	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67
Natural gas	1.79	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83
Other energy products	7.22	0.02	0.01	0.01	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.30
Grain	0.12	0.76	0.65	0.15	0.99	0.00	0.00	0.36	0.20	0.04	0.02	0.59	1.35	0.79	0.00	6.02
Other edible agricultural prod.	0.70	0.53	0.35	0.07	0.54	0.02	0.00	0.09	0.00	0.00	0.05	0.10	0.03	0.01	0.00	2.48
Non-edible agricultural prod.	5.83	0.26	0.52	0.09	0.50	0.14	0.01	0.03	0.02	0.00	0.01	0.00	0.06	0.00	0.00	7.48
Food industry	3.17	0.33	0.53	0.14	0.59	0.04	0.00	0.50	0.03	0.02	0.03	0.05	0.00	0.01	0.00	5.45
Other sectors	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.04	0.26
Total – all products	68.25	5.85	6.36	2.36	7.21	1.00	0.24	3.16	0.65	0.28	0.54	1.35	1.52	1.19	0.04	100.00

SOURCE The figures were provided by the CEPII.

Table 3-5

Canadian Exports by Region and by Sector, 1980

	United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
(Per cent)																
Construction materials	0.37	0.01	0.01	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.46
Iron and steel	1.80	0.15	0.04	0.06	0.03	0.01	0.00	0.22	0.06	0.02	0.03	0.08	0.00	0.07	0.00	2.58
Non-ferrous metals	3.92	0.63	0.47	0.30	0.34	0.03	0.00	0.19	0.02	0.03	0.13	0.18	0.02	0.09	0.17	6.53
Textiles	0.36	0.14	0.12	0.11	0.02	0.08	0.00	0.07	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.95
Wood and furniture products	1.11	0.10	0.08	0.02	0.08	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	1.44
Pulp and paper	7.63	1.08	0.56	0.13	0.56	0.16	0.03	0.45	0.01	0.01	0.12	0.14	0.00	0.14	0.00	11.03
Publishing	0.23	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
Miscellaneous manufacturing	0.86	0.08	0.07	0.06	0.01	0.02	0.00	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.00	1.15
Mechanical products	5.43	0.24	0.24	0.19	0.11	0.15	0.04	0.40	0.17	0.07	0.13	0.14	0.28	0.01	0.00	7.60
Precision instruments	0.52	0.07	0.05	0.02	0.02	0.02	0.00	0.10	0.02	0.01	0.02	0.01	0.01	0.00	0.00	0.87
Electronics (narrow definition)	1.52	0.19	0.14	0.15	0.05	0.04	0.01	0.13	0.03	0.02	0.03	0.02	0.00	0.00	0.00	2.35
Electrical equipment	0.36	0.02	0.03	0.01	0.00	0.01	0.00	0.06	0.05	0.00	0.00	0.02	0.01	0.00	0.00	0.61
Automotive parts	3.57	0.02	0.01	0.02	0.00	0.03	0.04	0.19	0.01	0.00	0.00	0.00	0.02	0.00	0.00	3.90
Automobiles	6.22	0.01	0.01	0.01	0.00	0.00	0.00	0.34	0.27	0.00	0.00	0.00	0.00	0.00	0.00	6.84
Vehicles	3.30	0.01	0.01	0.03	0.00	0.02	0.00	0.34	0.06	0.07	0.00	0.03	0.04	0.00	0.00	3.91
Aeronautical equipment	1.35	0.06	0.10	0.04	0.01	0.01	0.00	0.13	0.07	0.01	0.00	0.02	0.00	0.00	0.00	1.79
Chemical products	4.27	0.51	0.21	0.14	0.24	0.14	0.03	0.42	0.05	0.02	0.23	0.15	0.13	0.08	0.00	6.61
Minerals	2.02	1.41	0.77	0.62	1.39	0.14	0.09	0.24	0.13	0.04	0.17	0.12	0.09	0.06	0.26	7.55
Coal	0.00	0.03	0.00	0.05	0.93	0.00	0.00	0.07	0.00	0.00	0.12	0.02	0.00	0.00	0.00	1.22
Natural gas	6.36	0.01	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47
Other energy products	6.03	0.43	0.01	0.41	0.04	0.01	0.00	0.11	0.00	0.06	0.07	0.03	0.00	0.00	0.00	7.21
Grain	0.05	0.34	0.48	0.10	0.56	0.00	0.00	1.04	0.52	0.05	0.03	0.08	2.14	0.71	0.00	6.09
Other edible agricultural prod.	0.49	0.29	0.14	0.03	0.48	0.01	0.00	0.11	0.04	0.00	0.04	0.02	0.02	0.00	0.00	1.68
Non-edible agricultural prod.	3.11	0.51	0.41	0.11	0.72	0.08	0.00	0.04	0.17	0.00	0.05	0.00	0.02	0.00	0.00	5.23
Food industry	2.22	0.50	0.30	0.19	0.51	0.05	0.01	0.43	0.10	0.05	0.07	0.17	0.01	0.00	0.00	4.60
Other sectors	0.73	0.06	0.04	0.03	0.01	0.01	0.00	0.10	0.01	0.01	0.04	0.04	0.00	0.00	0.00	1.07
Total – all products	63.84	6.91	4.30	2.83	6.20	1.03	0.28	5.24	1.84	0.50	1.31	1.30	2.81	1.18	0.43	100.00

SOURCE The figures were provided by the CEPII.

Table 3-6

Canadian Exports by Region and by Sector, 1986

	United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
								(Per cent)								
Construction materials	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57
Iron and steel	1.54	0.06	0.01	0.01	0.01	0.00	0.00	0.06	0.00	0.00	0.02	0.02	0.00	0.01	0.00	1.75
Non-ferrous metals	2.72	0.13	0.14	0.07	0.10	0.01	0.00	0.85	0.01	0.01	0.09	0.02	0.00	0.01	0.00	4.16
Textiles	0.71	0.03	0.03	0.05	0.01	0.02	0.00	0.04	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.94
Wood and furniture products	1.74	0.03	0.05	0.01	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	1.92
Pulp and paper	7.14	0.61	0.26	0.07	0.45	0.11	0.01	0.28	0.05	0.01	0.12	0.15	0.01	0.11	0.00	9.39
Publishing	0.48	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51
Miscellaneous manufacturing	0.58	0.06	0.06	0.03	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.79
Mechanical products	6.55	0.18	0.18	0.11	0.04	0.07	0.02	0.25	0.07	0.04	0.05	0.12	0.13	0.14	0.00	7.95
Precision instruments	0.73	0.08	0.04	0.02	0.02	0.02	0.00	0.05	0.01	0.00	0.03	0.01	0.00	0.01	0.00	1.03
Electronics (narrow definition)	2.23	0.15	0.15	0.16	0.04	0.04	0.00	0.09	0.03	0.01	0.08	0.02	0.00	0.02	0.00	3.03
Electrical equipment	0.55	0.02	0.01	0.01	0.01	0.01	0.00	0.03	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.67
Automotive parts	7.30	0.03	0.01	0.02	0.02	0.02	0.00	0.17	0.01	0.00	0.01	0.00	0.00	0.00	0.00	7.60
Automobiles	15.23	0.01	0.00	0.01	0.00	0.00	0.00	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	15.41
Vehicles	4.85	0.00	0.00	0.03	0.00	0.03	0.00	0.10	0.02	0.04	0.00	0.03	0.00	0.06	0.00	5.17
Aeronautical equipment	1.88	0.11	0.12	0.05	0.00	0.04	0.00	0.18	0.01	0.05	0.01	0.11	0.00	0.04	0.00	2.60
Chemical products	4.47	0.44	0.14	0.08	0.23	0.09	0.01	0.25	0.04	0.02	0.27	0.15	0.01	0.09	0.00	6.30
Minerals	1.11	0.84	0.36	0.24	0.63	0.08	0.05	0.59	0.21	0.01	0.20	0.09	0.16	0.05	0.00	4.62
Coal	0.01	0.06	0.02	0.03	0.99	0.00	0.00	0.07	0.00	0.00	0.21	0.01	0.00	0.00	0.00	1.42
Natural gas	2.76	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.77
Other energy products	5.46	0.02	0.01	0.00	0.03	0.01	0.00	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.00	5.58
Grain	0.09	0.13	0.10	0.10	0.38	0.00	0.01	0.44	0.32	0.05	0.09	0.09	0.95	0.33	0.00	3.08
Other edible agricultural prod.	0.61	0.18	0.06	0.03	0.36	0.01	0.00	0.11	0.01	0.00	0.03	0.01	0.02	0.00	0.00	1.44
Non-edible agricultural prod.	3.86	0.18	0.21	0.04	0.53	0.07	0.00	0.01	0.01	0.00	0.11	0.00	0.01	0.03	0.00	5.06
Food industry	3.07	0.22	0.16	0.14	0.64	0.05	0.00	0.20	0.10	0.02	0.05	0.08	0.01	0.02	0.00	4.77
Other sectors	1.27	0.05	0.02	0.01	0.01	0.01	0.00	0.03	0.01	0.02	0.03	0.01	0.00	0.01	0.00	1.49
Total – all products	77.50	3.63	2.15	1.33	4.60	0.70	0.13	4.01	0.98	0.30	1.46	0.97	1.33	0.92	0.00	100.00

SOURCE The figures were provided by the CEPII.

Table 3-7

Canadian Imports by Region and by Sector, 1967

	United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
								(Per cent)								
Construction materials	1.18	0.20	0.27	0.02	0.09	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.05	0.00	0.00	1.81
Iron and steel	1.79	0.60	0.33	0.14	0.40	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	3.42
Non-ferrous metals	1.15	0.06	0.22	0.15	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	1.74
Textiles	1.86	0.70	0.84	0.24	0.71	0.04	0.00	0.04	0.01	0.01	0.39	0.30	0.23	0.13	0.00	5.51
Wood and furniture products	0.42	0.03	0.02	0.05	0.08	0.00	0.00	0.00	0.00	0.01	0.11	0.01	0.01	0.00	0.00	0.75
Pulp and paper	0.88	0.01	0.02	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94
Publishing	1.40	0.15	0.09	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66
Miscellaneous manufacturing	1.23	0.35	0.22	0.10	0.22	0.00	0.00	0.01	0.00	0.00	0.12	0.01	0.04	0.00	0.00	2.30
Mechanical products	16.63	1.10	1.42	0.62	0.39	0.02	0.01	0.00	0.00	0.00	0.02	0.00	0.05	0.00	0.00	20.26
Precision instruments	2.62	0.23	0.18	0.16	0.16	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	3.39
Electronics (narrow definition)	2.91	0.42	0.31	0.06	0.36	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	4.09
Electrical equipment	3.26	0.16	0.27	0.12	0.09	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	3.92
Automotive parts	9.30	0.07	0.11	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52
Automobiles	6.00	0.54	0.48	0.12	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	7.30
Vehicles	1.86	0.02	0.04	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95
Aeronautical equipment	2.75	0.09	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.17
Chemical products	5.43	0.56	0.46	0.21	0.12	0.01	0.00	0.06	0.00	0.00	0.01	0.01	0.01	0.01	0.00	6.89
Minerals	1.49	0.01	0.02	0.01	0.00	0.03	0.02	0.57	0.01	0.04	0.00	0.07	0.00	0.00	0.00	2.29
Coal	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25
Natural gas	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0[illegible]	0.00	0.00	0.00	0.00	0.00	0.21
Other energy products	0.81	0.03	0.06	0.00	0.00	0.00	0.00	3.54	0.77	0.17	0.00	0.00	0.00	0.00	0.00	5.36
Grain	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65
Other edible agricultural prod.	2.53	0.05	0.05	0.04	0.03	0.07	0.04	0.73	0.02	0.35	0.02	0.18	0.01	0.07	0.00	4.18
Non-edible agricultural prod.	1.35	0.05	0.04	0.07	0.01	0.11	0.00	0.09	0.00	0.08	0.12	0.08	0.14	0.00	0.00	2.15
Food industry	1.65	0.42	0.32	0.24	0.08	0.36	0.18	0.34	0.00	0.06	0.05	0.12	0.04	0.00	0.00	3.87
Other sectors	1.12	0.05	0.19	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.01	0.00	0.00	1.42
Total – all products	71.72	5.89	6.27	2.42	2.94	0.70	0.34	5.41	0.81	0.72	0.92	0.92	0.71	0.22	0.00	100.00

Source The figures were provided by the CEPII.

Table 3-8

Canadian Imports by Region and by Sector, 1973

	United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
								(Per cent)								
Construction materials	0.86	0.14	0.18	0.03	0.09	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.00	0.00	1.36
Iron and steel	1.65	0.33	0.20	0.17	0.51	0.01	0.04	0.03	0.00	0.00	0.00	0.00	0.05	0.00	0.00	2.99
Non-ferrous metals	0.97	0.07	0.12	0.22	0.01	0.00	0.01	0.02	0.00	0.01	0.00	0.06	0.02	0.01	0.00	1.52
Textiles	1.67	0.77	0.58	0.24	0.40	0.02	0.00	0.21	0.01	0.01	0.87	0.15	0.22	0.15	0.00	5.28
Wood and furniture products	0.64	0.04	0.02	0.12	0.03	0.00	0.00	0.01	0.00	0.00	0.22	0.01	0.02	0.00	0.00	1.12
Pulp and paper	0.95	0.02	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.04
Publishing	1.01	0.14	0.09	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26
Miscellaneous manufacturing	1.09	0.29	0.26	0.15	0.21	0.00	0.00	0.02	0.00	0.00	0.16	0.01	0.02	0.00	0.00	2.23
Mechanical products	14.69	1.25	1.13	0.70	0.52	0.03	0.00	0.01	0.00	0.00	0.08	0.00	0.05	0.00	0.00	18.47
Precision instruments	1.94	0.30	0.15	0.16	0.22	0.01	0.00	0.00	0.00	0.00	0.04	0.00	0.02	0.00	0.00	2.83
Electronics (narrow definition)	3.40	0.25	0.26	0.07	0.88	0.00	0.00	0.03	0.00	0.00	0.26	0.04	0.01	0.00	0.00	5.18
Electrical equipment	2.51	0.24	0.24	0.13	0.19	0.00	0.00	0.01	0.00	0.00	0.05	0.00	0.00	0.00	0.00	3.37
Automotive parts	10.85	0.15	0.10	0.12	0.10	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.33
Automobiles	6.30	0.85	0.26	0.12	1.31	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	8.89
Vehicles	3.01	0.05	0.02	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.22
Aeronautical equipment	2.05	0.04	0.22	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	2.36
Chemical products	5.27	0.82	0.41	0.29	0.20	0.06	0.01	0.04	0.00	0.00	0.06	0.00	0.03	0.01	0.00	7.20
Minerals	0.87	0.01	0.02	0.01	0.00	0.06	0.01	0.42	0.00	0.05	0.00	0.03	0.00	0.00	0.00	1.49
Coal	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92
Natural gas	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Other energy products	0.41	0.02	0.01	0.00	0.00	0.01	0.00	2.77	1.50	0.54	0.00	0.00	0.00	0.00	0.00	5.26
Grain	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
Other edible agricultural prod.	2.55	0.06	0.05	0.06	0.04	0.06	0.02	0.53	0.01	0.19	0.01	0.10	0.00	0.03	0.00	3.73
Non-edible agricultural prod.	1.34	0.03	0.04	0.05	0.00	0.06	0.01	0.06	0.00	0.01	0.14	0.08	0.01	0.01	0.00	1.83
Food industry	1.67	0.45	0.29	0.25	0.13	0.02	0.25	0.28	0.00	0.14	0.06	0.11	0.03	0.01	0.00	4.70
Other sectors	1.86	0.03	0.02	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.96
Total – all products	68.90	6.36	4.69	2.64	5.00	1.34	0.37	4.48	1.53	0.97	0.02	0.63	0.55	0.22	0.00	100.00

Source The figures were provided by the CEPII.

Table 3-9

Canadian Imports by Region and by Sector, 1980

	United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
								(Per cent)								
Construction materials	0.71	0.19	0.10	0.05	0.09	0.00	0.00	0.01	0.00	0.00	0.05	0.01	0.02	0.01	0.00	1.24
Iron and steel	0.58	0.38	0.14	0.18	0.22	0.01	0.03	0.13	0.00	0.00	0.08	0.00	0.01	0.00	0.00	1.77
Non-ferrous metals	0.66	0.11	0.03	0.04	0.03	0.00	0.01	0.02	0.00	0.03	0.00	0.00	0.01	0.00	0.00	0.95
Textiles	0.80	0.83	0.18	0.23	0.16	0.01	0.01	0.19	0.00	0.01	1.69	0.29	0.10	0.27	0.00	4.77
Wood and furniture products	0.42	0.14	0.01	0.10	0.01	0.00	0.00	0.01	0.00	0.00	0.12	0.04	0.01	0.00	0.00	0.86
Pulp and paper	0.94	0.09	0.03	0.11	0.02	0.00	0.00	0.04	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.25
Publishing	0.97	0.10	0.06	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.19
Miscellaneous manufacturing	0.90	0.32	0.09	0.13	0.29	0.00	0.00	0.03	0.01	0.00	0.45	0.04	0.01	0.03	0.00	2.30
Mechanical products	10.07	1.98	0.60	0.79	1.39	0.02	0.01	0.43	0.00	0.00	0.50	0.01	0.02	0.02	0.00	15.85
Precision instruments	1.81	0.33	0.13	0.14	0.42	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	2.99
Electronics (narrow definition)	5.09	0.26	0.18	0.09	0.49	0.00	0.00	0.13	0.00	0.00	0.73	0.02	0.00	0.00	0.00	7.99
Electrical equipment	2.22	0.31	0.13	0.13	0.34	0.00	0.00	0.05	0.00	0.00	0.27	0.01	0.01	0.00	0.00	3.48
Automotive parts	11.03	0.21	0.05	0.11	0.25	0.00	0.00	0.26	0.00	0.00	0.05	0.00	0.00	0.00	0.00	11.97
Automobiles	7.75	0.95	0.09	0.18	2.89	0.00	0.00	0.38	0.00	0.00	0.32	0.00	0.00	0.00	0.00	12.57
Vehicles	2.69	0.02	0.02	0.01	0.42	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	3.19
Aeronautical equipment	1.82	0.09	0.31	0.02	0.01	0.00	0.12	0.01	0.00	0.00	0.01	0.09	0.00	0.00	0.00	2.49
Chemical products	5.42	1.05	0.40	0.37	0.38	0.04	0.01	0.22	0.00	0.00	0.33	0.02	0.02	0.02	0.00	8.29
Minerals	0.76	0.01	0.01	0.01	0.00	0.04	0.05	0.20	0.00	0.05	0.00	0.00	0.01	0.00	0.00	1.15
Coal	0.69	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71
Natural gas	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
Other energy products	0.88	0.14	0.91	0.10	0.00	0.00	0.00	0.34	0.37	0.43	0.00	0.00	0.01	0.00	0.00	3.19
Grain	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.15
Other edible agricultural prod.	1.53	0.12	0.09	0.06	0.02	0.05	0.02	0.63	0.02	0.04	0.03	0.07	0.00	0.02	0.00	2.71
Non-edible agricultural prod.	0.84	0.05	0.02	0.07	0.00	0.02	0.01	0.02	0.00	0.00	0.05	0.07	0.00	0.06	0.00	1.21
Food industry	1.37	0.47	0.17	0.23	0.07	0.27	0.04	0.22	0.00	0.03	0.10	0.11	0.01	0.05	0.00	3.14
Other sectors	4.12	0.13	0.12	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.02	0.01	0.00	0.01	0.00	4.46
Total – all products	64.38	8.29	3.89	3.17	8.54	0.49	0.32	3.35	0.43	0.61	4.97	0.81	0.25	0.50	0.00	100.00

SOURCE The figures were provided by the CEPII.

Table 3-10

Canadian Imports by Region and by Sector, 1986

	United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
								(Per cent)								
Construction materials	0.86	0.13	0.18	0.04	0.07	0.00	0.00	0.01	0.00	0.00	0.03	0.01	0.03	0.00	0.00	1.37
Iron and steel	1.12	0.23	0.14	0.16	0.45	0.00	0.06	0.05	0.00	0.00	0.04	0.00	0.01	0.00	0.00	2.28
Non-ferrous metals	1.18	0.04	0.05	0.04	0.02	0.00	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42
Textiles	1.32	0.46	0.20	0.15	0.13	0.02	0.02	0.16	0.02	0.00	0.09	0.17	0.13	0.16	0.00	4.04
Wood and furniture products	0.47	0.03	0.02	0.06	0.01	0.00	0.00	0.01	0.00	0.00	0.10	0.02	0.01	0.00	0.00	0.73
Pulp and paper	0.99	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.08
Publishing	1.10	0.11	0.06	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.30
Miscellaneous manufacturing	1.27	0.23	0.15	0.12	0.20	0.00	0.00	0.02	0.00	0.00	0.24	0.02	0.01	0.00	0.00	2.25
Mechanical products	14.92	1.15	0.95	0.67	0.63	0.02	0.02	0.11	0.00	0.00	0.22	0.01	0.08	0.01	0.00	18.81
Precision instruments	2.00	0.21	0.12	0.10	0.37	0.01	0.00	0.00	0.00	0.00	0.13	0.00	0.01	0.00	0.00	2.96
Electronics (narrow definition)	4.03	0.18	0.14	0.06	0.86	0.00	0.00	0.04	0.00	0.00	0.49	0.02	0.00	0.00	0.00	5.83
Electrical equipment	1.99	0.24	0.12	0.12	0.17	0.00	0.00	0.02	0.00	0.00	0.10	0.01	0.00	0.00	0.00	2.78
Automotive parts	8.51	0.13	0.06	0.10	0.09	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.00	8.92
Automobiles	5.44	0.66	0.10	0.06	1.35	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.04	0.00	0.00	7.71
Vehicles	1.93	0.04	0.02	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19
Aeronautical equipment	2.23	0.04	0.22	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	2.53
Chemical products	5.71	0.71	0.49	0.27	0.31	0.04	0.02	0.09	0.00	0.00	0.13	0.01	0.01	0.01	0.00	7.80
Minerals	1.70	0.02	0.02	0.01	0.01	0.06	0.11	0.40	0.01	0.10	0.00	0.00	0.00	0.00	0.00	2.44
Coal	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22
Natural gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Other energy products	2.41	0.05	0.14	0.00	0.00	0.00	0.00	3.74	4.42	0.13	0.00	0.03	0.00	0.00	0.00	10.93
Grain	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43
Other edible agricultural prod.	1.96	0.10	0.07	0.07	0.02	0.06	0.02	0.68	0.01	0.04	0.02	0.06	0.00	0.01	0.00	3.13
Non-edible agricultural prod.	1.16	0.03	0.02	0.06	0.00	0.05	0.00	0.04	0.00	0.01	0.15	0.09	0.01	0.00	0.00	1.63
Food industry	1.59	0.38	0.21	0.19	0.06	0.61	0.20	0.45	0.00	0.01	0.11	0.13	0.02	0.02	0.00	3.96
Other sectors	1.72	0.10	0.21	0.01	0.01	0.08	0.05	0.02	0.00	0.00	0.01	0.00	0.01	0.01	0.00	2.23
Total – all products	67.31	5.29	3.75	2.36	4.96	0.97	0.51	5.94	4.46	0.30	2.93	0.61	0.40	0.23	0.00	100.00

SOURCE The figures were provided by the CEPII.

3 By product and by destination, the most spectacular growth was found in exports to the Third World: construction materials, non-ferrous metals, textiles, miscellaneous manufacturing, and grain to Black Africa; wood and furniture products, pulp and paper, vehicles, minerals (ore), grain, and non-edible agricultural products to the Arab nations; iron and steel, textiles, miscellaneous manufacturing, electronics, electrical equipment, vehicles, chemical products, minerals (ore), grain, and non-edible agricultural products to Asian NICs. Also worthy of note was the increase in exports of mechanical products to Eastern Europe and of automotive parts and food products to Japan.

The equivalent of Table 3-11 for total imports is Table 3-12. The variation indexes, by category, in constant U.S. dollars are also given, using 1967 as the base year.

Over the period, Canadian imports grew at about the same pace as exports:

1 Growth in imports from Asian NICs, Japan, and China, was particularly strong, but the growth rate was also above average for imports from Western Europe (Britain excluded). Imports from Britain, too, were up, but only by 50 per cent.

2 Categories boasting significantly higher-than-average growth rates were electronics (with a coefficient of 4.7), vehicles as a whole, and chemical products; those with about average growth included textiles, wood and furniture products, miscellaneous manufacturing, mechanical products, precision instruments, electrical equipment, aeronautical equipment, and the food industry; the remaining categories experienced poor growth, although grain was the only category to post an actual decline.

3 By product and origin, the highest indexes usually belonged to imports from the Third World: South America for construction materials, iron and steel, textiles, miscellaneous manufacturing, mechanical products, and electronics; Asian NICs for construction materials, iron and steel, non-ferrous metals, pulp and paper, publishing, miscellaneous manufacturing, mechanical products, precision instruments, electronics, electrical equipment, automobiles, aeronautical equipment, chemical products, and grain; South Asia for construction materials, wood and furniture products, miscellaneous manufacturing, electronics, and electrical equipment; China for mechanical products, non-edible agricultural products, and food products. The only high indexes outside the Third World were: Japan for vehicles as a whole and electrical equipment; Europe (excluding the nine EEC countries) for automotive parts and aeronautical equipment; and South Africa for minerals (ore). As might be expected, the largest increases were often found in imports that were very weak in 1967; this does not make them any less significant, however.

Canada's Changing Comparative Advantages

This last section of the appendix discusses how Canada's comparative advantages have evolved over time.

The comparative advantage n_k of a country for a group of products k will be defined using the following terms:

X_k	country's exports for product k;
M_k	country's imports for product k;
X	country's total exports;
M	country's total imports; and
Y	country's gross domestic product.

Thus, the comparative advantage n_k will be defined by the following equation [Lafay, 1988]:[11]

$$n_k = 2(1000/Y)(X_k M - X M_k)/(X_k + M_k).$$

Chart 3-7 describes how Canada's comparative advantages have evolved for 11 major foreign trade categories. The advantage is positive for agri-food, wood and paper, energy, non-ferrous metals, iron and steel, and vehicles. It is negative for chemical products, electrical equipment, and textiles, and especially poor for electronics and mechanical products. In general, these advantages changed little between 1967 and 1986. There were two exceptions: the comparative advantage for automobiles rose between 1980 and 1986 and the comparative advantage for energy rose until 1974, when it began a long downward slide.

In Chart 3-8, products are grouped by production stage into primary, basic manufacturing, mixed manufacturing, intermediate, consumption, and capital equipment. It is clear that Canada's comparative advantages lie in primary products and basic manufacturing, while it fares least well in consumption and, especially, capital equipment.

Table 3-13 lists the absolute value of 1986 comparative advantages for a finer breakdown of product groups. It serves to confirm the indications of Charts 3-7 and 3-8.

Last, Table 3-14 diagrams the evolution of comparative advantages for 19 selected groups of major products. Clear improvement may be seen in non-edible agricultural products, automotive parts, utility vehicles, and grain; while the comparative advantages connected with motors, specialized machinery, computer equipment, automobiles, and consumer electronics all declined.

Table 3-11

Exports by Category and by Destination, 1973, 1980, and 1986

(Constant U.S. dollars, 1967 = 100)

		United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
Construction materials	1973	379.7	332.1	325.7	496.4	302.5	528.5	799.7	153.6	121.3	2 ,673.1	41.0	109.7	–	–	–	369.6
	1980	489.5	623.0	337.1	220.3	837.1	182.3	51.3	367.4	1,276.3	12,793.8	370.4	677.0	–	–	–	472.4
	1986	855.6	169.9	77.7	140.4	712.8	76.5	10.5	129.9	250.6	3,413.5	790.5	124.1	–	–	–	701.3
Iron and steel	1973	148.5	215.5	61.4	225.1	107.9	32.5	22.2	88.5	–	127.5	138.1	62.7	–	–	–	129.7
	1980	275.7	348.8	43.9	475.3	297.4	27.5	25.4	164.4	–	293.2	1,985.6	341.5	–	–	–	247.8
	1986	282.2	155.8	16.3	129.9	138.0	6.5	3.6	51.7	–	33.0	1,908.8	96.0	–	–	–	201.3
Non-ferrous metals	1973	108.3	161.8	80.5	134.4	90.6	58.9	2.1	105.8	1,069.0	592.5	291.9	59.2	0.0	3,159.7	–	107.4
	1980	144.3	208.1	39.4	227.6	116.4	41.4	4.8	155.0	1,195.6	3,888.4	639.1	151.3	4,868.7	1,080.0	–	129.4
	1986	119.7	49.7	13.7	68.4	42.5	14.6	0.9	831.2	308.0	1,765.2	532.6	24.7	101.6	117.5	–	98.6
Textiles	1973	266.4	286.4	112.0	269.6	591.0	155.6	75.5	149.3	93.6	820.8	525.4	42.6	116.6	–	–	211.8
	1980	176.6	587.9	115.2	402.6	805.4	311.7	70.1	152.1	939.9	2,382.1	610.9	202.3	250.7	–	–	213.7
	1986	418.1	152.1	32.8	206.7	600.6	80.7	43.7	112.4	847.1	2,000.4	995.9	106.5	81.9	–	–	250.6
Wood and furniture products	1973	212.6	230.9	122.5	134.9	50.7	68.6	166.6	138.7	309.9	168.6	–	3,365.3	–	–	–	188.5
	1980	258.5	338.9	55.6	349.4	1,102.5	110.5	72.3	121.1	6,238.0	406.6	–	1,855.2	–	–	–	227.3
	1986	486.0	120.4	41.5	171.1	892.6	106.9	98.9	84.7	6,137.6	207.9	–	3,370.6	–	–	–	363.5
Pulp and paper	1973	105.0	206.9	119.9	400.8	174.4	109.5	83.0	142.3	795.4	193.4	369.1	105.9	–	–	–	115.2
	1980	137.4	389.0	130.4	694.0	312.8	107.2	120.1	185.7	338.0	489.6	611.7	185.7	–	–	–	158.1
	1986	154.0	263.4	72.2	453.7	304.2	88.0	55.0	135.1	1,840.9	241.9	735.8	241.9	–	–	–	161.0
Publishing	1973	246.8	398.9	139.6	249.5	307.0	126.7	66.6	77.8	8,955.6	1,250.4	63.8	0.0	–	–	–	222.8
	1980	419.0	835.6	164.0	428.4	237.1	81.1	159.2	109.4	88,921.3	667.4	532.5	61.5	–	–	–	373.3
	1986	1,050.8	673.7	152.0	515.4	609.2	186.6	78.4	91.2	12,357.8	1,557.4	1,221.5	105.2	–	–	–	865.3
Miscellaneous manufacturing	1973	291.3	139.2	252.9	113.8	461.6	196.0	199.9	140.8	0.0	1,502.6	233.8	206.1	66.6	–	–	239.7
	1980	887.2	364.1	278.4	321.7	323.0	301.8	97.5	171.6	1,813.7	3,983.2	1,353.7	448.2	183.7	–	–	615.9
	1986	716.3	311.9	305.4	187.2	349.7	306.3	33.9	105.9	716.2	13,166.3	1,412.5	326.6	165.1	–	–	507.1
Mechanical products	1973	166.4	235.4	138.7	275.2	295.5	73.1	186.2	142.0	310.7	480.2	145.4	64.5	453.2	–	–	164.2
	1980	184.2	365.1	216.7	484.9	1,073.1	132.9	254.6	254.1	1,098.8	607.4	1,383.4	192.8	11,664.6	–	–	212.8
	1986	266.1	324.1	191.7	332.6	396.2	76.5	113.4	191.6	562.4	446.3	589.4	203.0	6,779.8	–	–	266.5

Table 3-11 (cont'd.)

		United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
(Constant U.S. dollars, 1967 = 100)																	
Precision instruments	1973	107.5	123.0	93.0	83.6	222.6	116.2	173.3	184.2	5,045.9	170.8	253.2	42.7	533.2	466.5	–	115.9
	1980	176.4	106.7	87.5	92.0	515.6	109.8	173.8	497.5	4,740.0	305.5	1,663.8	179.7	1,441.8	454.4	–	174.4
	1986	294.5	152.0	85.1	94.5	806.0	158.1	117.4	307.7	2,970.1	231.6	3,208.6	237.5	255.1	1,770.2	–	247.9
Electronics (narrow definition)	1973	187.9	169.5	367.2	462.2	49.7	347.3	–	167.8	1,527.4	136.1	3,878.7	182.3	–	–	–	209.3
	1980	274.5	277.3	270.9	1,030.2	76.5	602.8	–	295.5	636.8	867.0	1,496.5	81.3	–	–	–	277.8
	1986	480.9	267.0	351.6	1,301.7	77.9	703.5	–	244.2	611.5	364.3	4,181.3	94.0	–	–	–	428.2
Electrical equipment	1973	156.9	163.8	112.7	133.0	25.3	99.2	224.9	134.6	293.4	220.1	1,661.6	58.3	–	–	–	138.5
	1980	143.3	139.8	101.7	156.6	18.5	94.1	126.3	119.6	1,193.9	95.7	2,878.3	35.2	–	–	–	134.5
	1986	256.8	152.3	57.3	116.9	47.2	46.0	34.3	61.5	595.1	136.9	3,937.6	20.1	–	–	–	178.7
Automotive parts	1973	321.8	172.1	112.6	96.6	400.5	24.6	133.3	210.3	29.1	151.7	173.7	235.0	–	–	–	299.4
	1980	232.4	127.7	171.1	125.6	2,576.6	46.4	175.8	298.4	122.6	353.7	142.5	231.9	–	–	–	226.4
	1986	569.5	346.9	122.3	143.7	11,732.4	44.7	10.8	331.6	132.5	156.7	838.8	154.7	–	–	–	527.3
Automobiles	1973	202.4	69.4	16.9	33.5	187.0	0.0	0.0	63.3	56.5	3.9	0.6	65.0	–	–	–	194.8
	1980	148.5	223.4	379.2	49.4	88.9	1.2	0.5	282.4	1,716.3	40.6	21.3	6.4	–	–	–	155.5
	1986	435.1	264.2	112.4	76.9	345.8	1.3	0.0	131.5	230.9	63.8	27.3	44.5	–	–	–	419.0
Vehicles	1973	170.7	–	96.9	7,948.9	–	14.1	59.0	56.1	2,591.6	335.1	2,280.1	32.8	–	–	–	162.9
	1980	308.9	–	557.8	1,753.2	–	47.8	12.0	298.4	5,147.9	747.4	5,905.2	82.4	–	–	–	301.6
	1986	544.0	–	129.9	1,991.2	–	77.0	17.4	103.4	2,300.5	496.7	8,163.6	99.9	–	–	–	477.9
Aeronautical equipment	1973	91.8	156.5	233.7	119.2	415.1	78.7	4.4	135.4	69.8	81.6	20.2	56.2	–	–	–	97.2
	1980	127.4	143.3	311.2	136.4	664.0	52.7	3.9	301.2	1,111.5	48.3	49.7	52.3	–	–	–	137.5
	1986	212.6	319.6	420.0	236.8	320.2	376.8	7.2	527.4	246.8	277.5	172.3	269.3	–	–	–	238.8
Chemical products	1973	147.1	111.7	104.8	121.0	136.3	114.9	103.0	112.8	441.7	292.2	141.0	271.2	50.0	533.2	–	138.1
	1980	313.3	408.7	85.9	315.8	347.8	179.5	189.1	304.9	905.1	596.8	830.7	472.4	1,753.9	7,980.9	–	306.6
	1986	392.4	424.2	68.7	212.7	399.4	142.2	87.1	219.4	749.7	676.9	1,169.6	583.4	180.7	11,558.3	–	349.2
Minerals	1973	92.6	154.9	89.0	158.8	247.3	98.5	124.7	136.7	205.7	180.3	213.3	78.6	74.2	–	–	134.0
	1980	80.9	182.2	94.1	144.9	166.7	162.9	627.8	323.9	1,808.5	973.9	929.2	173.0	274.7	–	–	133.7
	1986	53.0	130.0	52.6	67.6	90.4	108.7	441.4	948.6	3,492.3	209.4	1,331.9	161.4	568.5	–	–	97.8

Table 3-11 (concl.)

		United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
(Constant U.S. dollars, 1967 = 100)																	
Coal	1973	99.2	–	–	–	922.1	–	–	–	–	–	–	–	–	–	–	821.4
	1980	44.1	–	–	–	1,638.4	–	–	–	–	–	–	–	–	–	–	1,872.5
	1986	208.9	–	–	–	2,104.3	–	–	–	–	–	–	–	–	–	–	2,600.8
Natural gas	1973	229.4	–	–	–	113.4	–	–	0.0	–	0.0	–	–	–	–	–	224.5
	1980	1,025.8	–	–	–	356.9	–	–	142.0	–	0.0	–	–	–	–	–	999.9
	1986	532.2	–	–	–	0.0	–	–	594.1	–	0.0	–	–	–	–	–	511.8
Other energy products	1973	229.1	1,254.2	114.4	1,645.9	–	–	–	294.3	–	0.0	35.6	0.0	–	–	–	300.0
	1980	314.8	29,761.1	179.3	67,658.4	–	–	–	1,980.9	–	4,201.2	1,742,941.0	1,298,046.0	–	–	–	372.8
	1986	341.1	1,442.6	121.8	204.1	–	–	–	599.6	–	266.0	584,831.3	195,101.4	–	–	–	345.7
Grain	1973	129.9	109.0	85.2	89.1	147.4	–	0.5	249.9	909.3	529.6	129.0	139.8	154.1	159.9	–	135.2
	1980	69.8	61.6	78.2	73.3	104.2	–	0.0	901.0	2,918.9	793.9	261.0	23.6	307.2	183.1	–	172.2
	1986	157.6	28.7	20.3	92.7	84.3	–	22.6	452.6	2,141.4	969.3	966.9	32.3	162.9	100.1	–	104.3
Other edible agricultural prod.	1973	182.7	335.4	79.1	107.8	268.1	1,505.7	–	148.4	50.4	30.3	562.1	7,752.9	299.9	–	–	184.6
	1980	162.7	234.5	39.2	62.2	301.1	785.4	–	211.0	622.5	122.2	574.7	1,998.6	367.3	–	–	157.4
	1986	240.9	168.9	21.4	65.5	271.3	1,140.6	–	268.5	242.0	167.5	502.2	802.2	317.8	–	–	160.8
Non-edible agricultural prod.	1973	222.9	123.1	97.5	178.9	151.3	189.2	44.4	91.1	2,945.1	33.3	149.8	52.6	113.8	–	–	189.6
	1980	149.6	303.0	96.3	276.0	276.3	137.7	13.7	191.6	26,836.3	0.7	703.4	42.5	46.8	–	–	166.9
	1986	222.3	126.0	58.5	128.2	245.9	129.6	10.0	63.1	1,403.3	1.5	1,934.5	35.7	27.7	–	–	193.3
Food industry	1973	142.7	211.2	93.9	212.1	856.3	145.4	45.8	110.4	190.5	58.3	326.4	70.0	–	–	–	147.3
	1980	125.8	408.8	67.7	371.2	918.6	214.3	70.7	119.2	839.1	156.5	831.0	303.1	–	–	–	156.5
	1986	208.6	213.5	41.9	318.1	1,400.9	231.2	75.3	67.3	987.0	81.8	649.3	180.7	–	–	–	194.0
Other sectors	1973	139.9	55.5	95.2	100.0	–	0.0	0.0	40.7	–	466.5	–	0.0	0.0	–	63.9	112.0
	1980	638.0	2,052.4	1,087.0	716.7	–	363.8	485.1	1,127.0	–	1,129.0	–	2,810.9	704.1	–	0.0	579.4
	1986	1,319.5	1,974.0	720.6	471.0	–	619.6	304.9	479.8	–	1,995.6	–	1,260.6	269.4	–	0.0	959.2
Total – all products	1973	167.2	163.7	97.1	168.8	221.1	94.7	54.5	127.3	450.5	183.1	291.3	111.3	153.1	235.9	63.9	159.2
	1980	196.9	243.3	82.6	255.5	239.5	122.5	80.4	266.0	1,602.4	408.3	896.2	135.1	355.8	294.2	926.3	200.4
	1986	286.1	152.8	49.3	143.1	212.4	100.4	45.5	243.3	1,020.9	296.5	1,190.9	120.4	202.0	276.1	0.2	239.8

SOURCE The figures were provided by the CEPII.

Table 3-12

Imports by Category and by Origin, 1973, 1980, and 1986

(Constant U.S. dollars, 1967 = 100)

		United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
Construction materials	1973	112.4	106.8	105.9	283.4	154.9	294.3	–	737.0	–	0.0	315.1	166.9	92.5	111.1	–	115.7
	1980	137.6	128.9	129.9	417.9	155.3	371.3	–	1,444.4	–	0.0	717.7	1,489.9	98.7	218.7	–	142.9
	1986	143.3	235.7	88.5	676.1	250.6	133.6	–	3,267.8	–	9.0	1,355.2	1,321.8	96.5	638.8	–	163.6
Iron and steel	1973	142.3	86.2	92.6	181.4	200.5	71.1	116.0	1,435.9	–	–	3,530.1	2,070.9	82.2	–	–	135.1
	1980	118.1	72.6	80.5	214.5	214.1	55.6	241.5	3,004.1	–	–	53,923.9	5,851.2	30.2	–	–	125.7
	1986	77.0	152.4	103.5	308.3	135.2	134.7	128.0	9,693.6	–	–	144,105.0	3,949.0	24.7	–	–	123.6
Non-ferrous metals	1973	130.2	203.3	82.7	232.0	178.1	15.6	288.8	–	–	–	227.4	75.6	–	1,599.5	–	135.4
	1980	194.0	146.6	42.6	54.6	260.9	2.4	386.2	–	–	–	111,471.1	2.4	–	116.5	–	154.3
	1986	137.9	460.8	37.6	63.5	569.1	25.8	556.6	–	–	–	130,921.9	2.7	–	101.9	–	131.4
Textiles	1973	138.4	168.7	106.8	154.2	85.6	60.8	–	767.4	160.6	120.0	342.7	77.0	147.8	172.7	–	147.9
	1980	134.3	123.5	46.1	122.1	35.0	82.4	–	715.9	285.0	30.1	524.7	108.5	104.5	227.0	–	138.0
	1986	103.1	283.5	51.2	231.7	54.4	84.7	–	1,076.0	97.6	140.4	1,026.7	227.8	101.2	497.0	–	207.1
Wood and furniture products	1973	234.8	233.4	211.3	360.1	53.8	75.4	133.3	410.8	–	58.6	301.4	269.0	228.5	–	–	231.6
	1980	209.0	219.5	189.2	232.7	23.8	251.4	94.1	283.8	–	37.3	159.1	557.3	166.1	–	–	183.1
	1986	237.5	1,170.8	149.8	443.4	21.4	724.7	26.9	423.1	–	57.7	251.1	1,411.9	222.4	–	–	273.9
Pulp and paper	1973	166.8	296.1	192.9	237.0	241.1	–	5.6	1,286.9	–	–	127,389.2	–	333.2	–	–	170.2
	1980	213.4	542.2	235.5	186.0	246.0	–	1.4	700.5	–	–	170,146.9	–	411.0	–	–	215.8
	1986	257.0	2,768.4	381.8	1,542.6	668.7	–	0.3	23,963.5	–	–	320,090.8	–	89.8	–	–	316.6
Publishing	1973	111.5	143.7	148.9	154.8	231.1	112.6	–	66.6	–	–	704.2	0.0	44.4	–	–	117.3
	1980	148.5	134.2	130.2	165.5	212.5	235.8	–	117.4	–	–	1,215.1	63.4	30.9	–	–	147.0
	1986	166.3	163.6	163.4	304.9	676.4	677.0	–	157.0	–	–	3,541.5	113.8	43.3	–	–	170.8
Miscellaneous manufacturing	1973	137.7	128.2	185.0	236.8	149.6	157.2	244.4	356.5	–	–	207.8	139.8	95.7	146.6	–	150.2
	1980	195.6	121.8	129.1	219.9	170.0	119.8	125.1	447.1	–	–	372.3	472.4	36.4	175.0	–	185.0
	1986	176.3	216.2	100.0	320.4	322.1	216.9	38.3	684.5	–	–	889.0	1,266.0	41.1	1 ,625.3	–	239.5
Mechanical products	1973	136.6	175.7	123.1	173.6	209.3	297.8	95.2	638.5	–	–	506.3	237.1	155.1	199.9	–	141.0
	1980	169.3	197.3	126.8	202.6	305.4	223.1	453.3	7,484.8	–	–	1,831.8	675.6	329.1	1,595.4	–	175.1
	1986	145.0	433.5	101.4	302.4	857.9	294.6	422.2	35,836.9	–	–	5,174.5	797.2	120.9	3,808.5	–	187.3

Table 3-12 (cont'd.)

		United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
		(Constant U.S. dollars, 1967 = 100)															
Precision instruments	1973	114.5	198.6	121.7	152.4	214.0	150.6	88.9	–	–	–	860.6	63,443.1	261.0	100.0	–	129.1
	1980	143.7	170.9	122.1	121.8	452.7	112.9	28.5	–	–	–	3,869.5	903,615.2	137.1	79.7	–	164.8
	1986	165.6	344.9	163.6	209.8	647.5	87.6	14.7	–	–	–	5,182.0	466,457.0	38.1	279.0	–	211.2
Electronics (narrow definition)	1973	180.5	90.7	128.2	174.7	375.8	69.1	–	2,274.4	–	–	2,073.9	3,625.3	144.4	–	–	195.7
	1980	261.4	80.0	86.0	204.5	448.4	272.5	–	4,049.6	–	–	4,779.3	1,935.5	13.2	–	–	268.5
	1986	418.6	144.6	141.5	375.8	985.6	262.8	–	16,142.0	–	–	9,035.3	2,854.3	39.9	–	–	467.4
Electrical equipment	1973	118.7	240.6	138.1	164.4	339.1	194.9	–	–	–	–	606.4	0.0	122.2	0.0	–	133.1
	1980	114.7	293.5	87.8	184.8	359.6	179.0	–	–	–	–	1,626.4	184,599.7	130.6	17.8	–	133.7
	1986	163.0	473.8	120.3	266.6	935.4	146.2	–	–	–	–	5,290.6	320,544.6	204.9	451.4	–	212.6
Automotive parts	1973	180.2	302.9	142.1	1,443.6	1,381.5	112.8	33.3	–	–	–	–	–	–	–	–	184.0
	1980	172.5	329.9	106.9	1,517.3	1,466.4	160.1	99.0	–	–	–	–	–	–	–	–	176.7
	1986	284.0	659.3	108.7	2,043.1	5,471.2	196.4	167.4	–	–	–	–	–	–	–	–	301.1
Automobiles	1973	162.3	244.1	83.7	165.6	1,337.5	–	–	–	–	–	885,681.6	–	204.4	–	–	188.3
	1980	171.1	231.5	40.3	105.3	1,683.0	–	–	–	–	–	2,059,140.0	–	522.9	–	–	199.3
	1986	309.6	422.1	46.0	365.5	4,562.4	–	–	–	–	–	1,817,936.0	–	70.0	–	–	412.6
Vehicles	1973	249.8	503.5	100.2	61.1	1,317.7	–	–	–	–	–	–	–	–	–	–	255.4
	1980	194.7	494.3	117.0	74.4	2,396.9	–	–	–	–	–	–	–	–	–	–	211.7
	1986	345.5	327.7	148.9	213.1	6,869.6	–	–	–	–	–	–	–	–	–	–	392.1
Aeronautical equipment	1973	115.5	66.4	104.2	342.6	–	–	–	–	–	–	1,044.6	–	–	–	–	115.3
	1980	153.1	77.5	125.0	3,247.1	–	–	–	–	–	–	79.2	–	–	–	–	150.3
	1986	158.8	242.7	222.0	5,441.0	–	–	–	–	–	–	1,212.1	–	–	–	–	188.4
Chemical products	1973	150.2	226.1	136.5	211.0	252.8	740.5	444.3	105.4	0.0	199.9	876.3	114.7	562.8	216.6	–	161.5
	1980	198.3	239.3	202.5	240.1	479.4	570.3	1,196.2	280.0	13.3	13.1	2,262.9	421.3	225.6	304.9	–	213.4
	1986	239.3	450.9	209.0	426.4	746.6	711.2	793.8	863.8	549.5	237.1	7,640.4	712.1	548.6	715.2	–	288.3
Minerals	1973	89.9	82.3	126.6	161.2	214.7	306.7	125.9	114.3	0.0	193.1	–	63.2	44.4	–	–	100.8
	1980	215.4	226.4	154.0	208.4	1,150.1	380.4	1,134.4	132.5	116.8	428.6	–	8.8	71.2	–	–	201.2
	1986	122.7	212.3	113.9	246.5	89.5	290.5	654.1	82.1	94.8	285.0	–	14.2	714.3	–	–	120.8

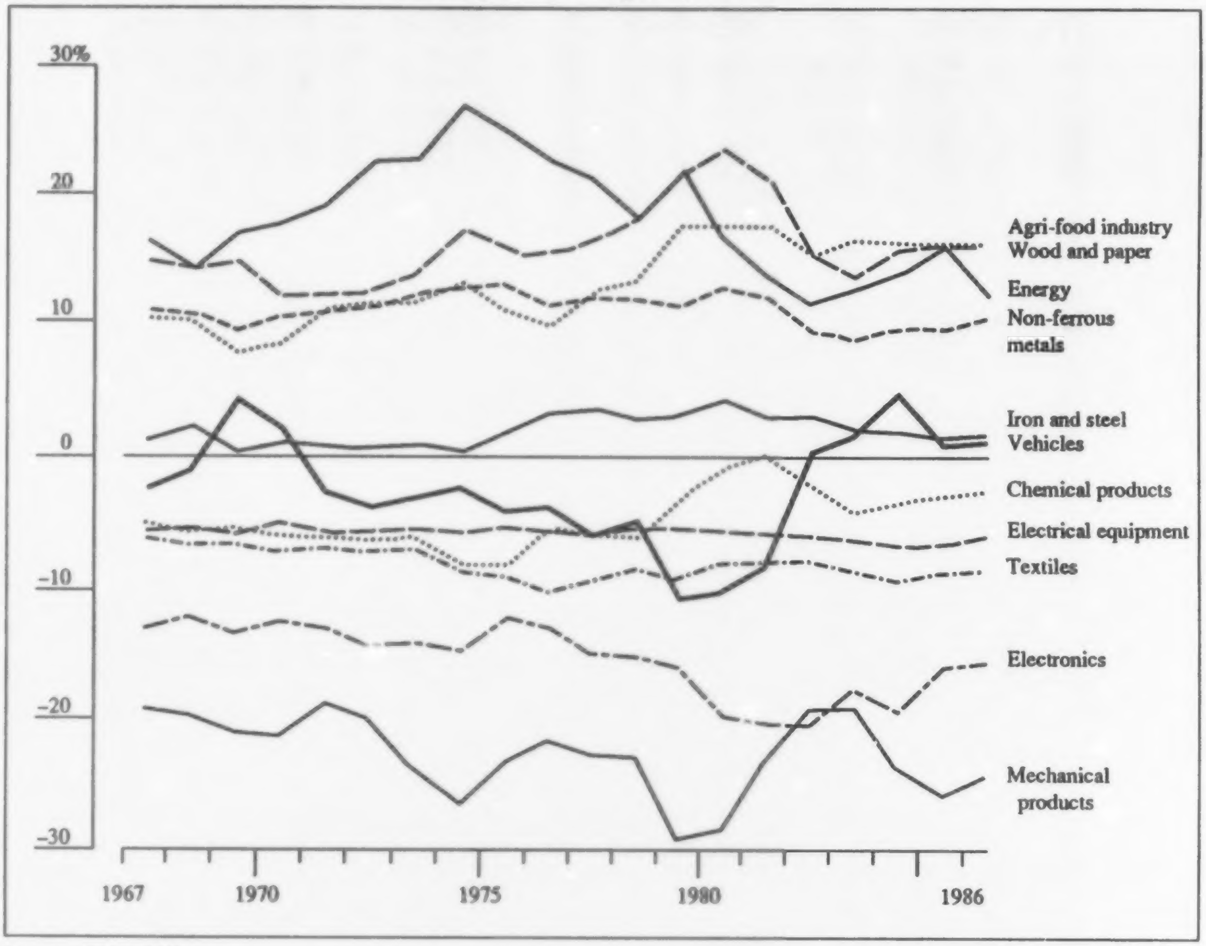
Table 3-12 (concl.)

		United States	Core EEC	British Isles	Other Western Europe	Japan	Australia and New Zealand	South Africa	Latin America	Arab countries	Black Africa	Asian NICs	Other Asian countries	Eastern Europe	China	Rest of the world	Total world
(Constant U.S. dollars, 1967 = 100)																	
Coal	1973	113.4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	113.4
	1980	184.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	184.3
	1986	135.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	135.3
Natural gas	1973	37.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	37.6
	1980	26.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	26.7
	1986	161.8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	162.7
Other energy products	1973	79.0	128.7	26.8	–	–	–	–	120.9	302.6	506.5	0.0	0.0	–	–	–	151.7
	1980	565.0	338.4	458.7	–	–	–	–	199.4	1,087.1	150.3	936.4	344,221.8	–	–	–	384.3
	1986	261.1	1,244.9	3,686.5	–	–	–	–	23.1	115.8	622.6	115,149.6	365.6	–	–	–	142.3
Grain	1973	90.4	159.0	–	–	–	0.0	–	–	–	–	263.7	–	–	33.3	–	91.5
	1980	124.8	116.6	–	–	–	42.7	–	–	–	–	754.9	–	–	4.0	–	124.7
	1986	52.0	277.5	–	–	–	9.7	–	–	–	–	15,882.0	–	–	15.5	–	55.9
Other edible agricultural prod.	1973	156.0	192.5	174.1	221.9	255.6	133.0	86.8	111.9	129.0	85.1	84.0	84.9	44.4	62.7	–	138.1
	1980	146.0	355.4	267.4	307.0	155.5	168.9	87.9	176.1	141.3	22.6	132.5	68.6	43.9	39.6	–	141.1
	1986	144.7	553.6	459.2	367.0	179.4	178.9	106.8	207.9	249.4	26.8	317.9	99.0	32.3	90.6	–	155.4
Non-edible agricultural prod.	1973	153.2	105.8	149.7	97.9	43.3	78.0	213.3	107.3	55.8	10.1	184.3	154.7	16.4	216.6	–	131.7
	1980	161.7	119.4	103.3	155.3	31.0	82.7	109.1	92.4	14.3	18.9	238.3	217.7	11.1	88.9	–	142.8
	1986	149.1	253.3	105.2	215.0	102.4	46.0	267.0	52.1	16.8	4.9	102.9	204.7	5.3	3,368.1	–	134.7
Food industry	1973	157.0	166.5	141.2	161.2	238.0	436.2	210.3	127.2	33.4	357.3	182.6	136.1	138.8	1,266.2	–	187.6
	1980	182.1	169.8	123.5	146.4	128.6	319.9	201.1	215.1	86.3	19.4	387.4	194.1	83.9	3,931.4	–	192.8
	1986	199.2	265.6	130.4	222.4	188.9	178.2	55.3	153.8	349.6	129.5	462.9	219.2	92.0	11,575.0	–	194.3
Other sectors	1973	255.9	86.8	15.9	–	866.4	66.6	199.9	171.4	100.0	328.7	37.4	247.4	95.2	266.6	–	213.4
	1980	289.3	351.3	214.0	–	1,829.4	7,766.6	9,632.1	147.8	275.1	467.0	62.1	219.4	315.0	1,261.7	–	296.6
	1986	878.8	577.3	154.2	–	2,681.4	1,105.1	537.6	146.7	491.6	1,199.9	221.3	735.3	159.0	1,955.8	–	751.5
Total – all products	1973	148.5	166.7	115.6	187.7	263.0	298.1	169.3	127.9	290.1	206.8	339.7	105.7	120.4	153.8	–	154.6
	1980	176.9	169.3	112.6	183.7	318.0	262.9	284.4	207.0	1,032.9	77.5	599.7	124.9	104.7	195.2	–	188.6
	1986	214.9	336.9	148.7	314.0	695.6	167.6	225.9	148.2	125.1	201.6	1,293.0	212.5	85.5	538.0	–	239.5

SOURCE The figures were provided by the CEPII.

Chart 3-7

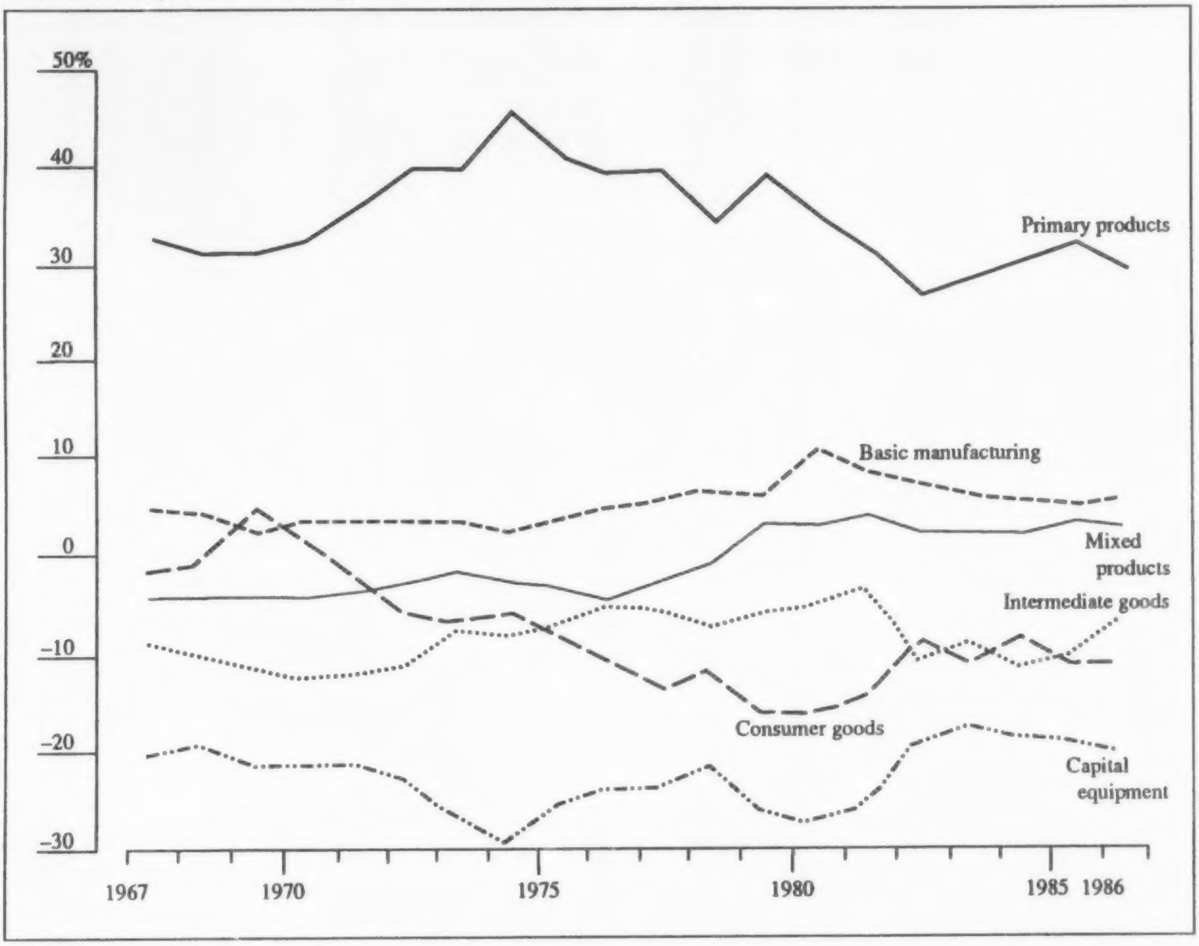
Canada's Comparative Advantages for Foreign Trade Categories, 1967-86



Source CEPII, 1988.

Chart 3-8

Canada's Comparative Advantages, Six Production Stages, 1967-86



SOURCE CEPII, 1988.

Table 3-13

Canada's Comparative Advantages, Selected Products: Strong and Weak Points,[1] 1986

	Production stage											
	Primary products		Basic manufacturing		Intermediate goods		Capital equipment		Mixed products		Consumer goods	
	(Per cent)											
Iron and steel												
Non-ferrous metals	HB	3.4	CC	7.2								
Mechanical products					FB	-3.3	FG	-4.4				
					FC	-4.8	FF	-1.9				
Vehicles					FS	-9.9	FU	4.4			FT	6.6
Electrical equipment							FR	-3.9				
Electronics (narrow def.)							FO	-5.6			FM	-3.2
Other energy products	IC	5.9										
Agri-food industry	JC	8.8										
	JA	6.6										
	JB	-2.9							KC	3.7		
Textiles					DA	-2.7						
Wood and paper					EC	18.5					EE	-3.4
Chemical products	HC	2.9										

1 **Strong points**

EC – Pulp and paper
JC – Non-edible agricultural products
CC – Non-ferrous metals
JA – Grain
FT – Automobiles
IC – Natural gas
FU – Utility vehicles
KC – Meat and fish
HB – Metal scraps, non-ferrous
HC – Ore (not covered elsewhere)

Weak points

FS – Automotive parts
FO – Computer equipment
FC – Motors
FG – Specialized machinery
FR – Electrical supplies
EE – Miscellaneous manufacturing
FB – Hardware supplies
FM – Consumer electronics
JB – Other edible agricultural products
DA – Linens, cloth

FF – Construction equipment

Table 3-14

Canada's Comparative Advantages, Selected Products, 1967-86

		Value				Variation
		1967	1973	1980	1986	1967-86
		(Per cent)				
JC	– Non-edible agricultural products	3.2	5.5	7.5	8.8	5.5
IH	– Refined petroleum products	-2.4	0.9	3.5	1.3	3.7
IA	– Coal	-1.7	-0.8	0.2	1.7	3.4
FS	– Automotive parts	-12.6	-9.7	-14.5	-9.9	2.7
FU	– Utility vehicles	2.0	-0.7	4.8	4.4	2.4
JA	– Grain	4.9	5.5	9.6	6.6	1.7
FB	– Hardware supplies	-4.9	-3.7	-4.5	-3.3	1.6
KC	– Meat and fish	2.2	1.7	3.4	3.7	1.5
EB	– Furniture	-0.1	0.3	0.3	1.2	1.3
HC	– Ore (not covered elsewhere)	1.6	1.8	2.8	2.9	1.2
DB	– Clothing manufacturing	-1.1	-0.8	-1.4	-2.0	-0.9
FC	– Motors	-3.8	-4.5	-7.2	-4.8	-1.0
FG	– Specialized machinery	-3.3	-4.1	-4.7	-4.4	-1.1
FO	– Computer equipment	-4.5	-4.2	-7.6	-5.6	-1.2
FT	– Automobiles	8.0	7.2	-0.7	6.6	-1.4
JB	– Other edible agricultural products	-1.4	-1.2	-2.6	-2.9	-1.5
KH	– Drinks	1.2	0.5	-0.4	-0.4	-1.6
FM	– Consumer electronics	-0.7	-2.4	-2.8	-3.2	-2.5
IC	– Natural gas	18.9	17.8	16.1	5.9	-12.9

Figure 3-3

Chelem's Industrial Classification (90 categories)

AZ+		All buildings and public works.

Tradable Goods

BA+	1	Cement, lime, and plaster.
BB+	2	Ceramics, tiles, and brick (including pottery and mineral products n.c.e.).
BC	3	Glass, panes, and glassware.
CA	4	Iron and steel products (iron, cast iron, and steel in the form of ingots, semi-manufactured products, bars, sections, flat bars, scrap, sheets, or rails).
CB	5	Tubes and other primary processing of iron, cast iron, and steel (pipes, plumbing supplies, wires, moulds and rough forging, including iron-alloy products, excluding products made of non-ferrous metals classified under CC, and smelting products related to electromechanical categories F).
CC	6	Non-ferrous metals (primary forms and primary processing products).
DA	7	Spun and woven products (natural, artificial, and synthetic textiles, including fabric, rope, industrial textiles, excluding continuous synthetic and artificial threads classified under GG).
DB	8	Tailored clothing (fabric clothing and accessories, excluding other clothing classified under DC and DE, headgear and moulded articles classified under GG).
DC	9	Knitted clothing (including accessories, excluding fabric classified under DA and knitted headgear classified under DD).
DD	10	Rugs and other final-use textiles (floor coverings, tapestries, household linens and other moulded furniture, headgear, and textiles n.c.e.).
DE	11	Leather, furs, and shoes (leather and fur goods, including shoes, clothing, bags, luggage, fancy leather goods, saddlery items, as well as comparable rubber and plastic goods). This category includes dressed leathers and furs, but not hides and pelts, which are classified under JC.
EA	12	Wooden articles (plywood, panels, frames, framing, crates, cases, cork items, and so on, excluding timber and lumber and raw cork classified under JC and furniture classified under EB).
EB	13	Furniture and accessories (including metal and plastic furniture).
EC	14	Pulp, paper, and cardboard (including items manufactured from these materials).
ED	15	Printing, publishing, and polygraphic products (including photographs, reproductions, book covers, and non-metal etchings).
EE	16	Various manufactured goods n.c.e. (notably: jewelry, gold, art, toys, musical instruments, basketwork, draperies, orthopedic equipment, umbrellas, canes, candles and matches, sports equipment, photographic and cinematographic supplies, rags and scraps n.c.e.). This category does not include articles made entirely of plastic and rubber, which are classified in GH and GI, respectively.
FA	17	Industrial boilers (tanks, vats, shafts, metal frames and doors, and steel construction components).
FB	18	Metal articles and general mechanical products (bathroom fixtures, plumbing and heating equipment, cables, nails, nut-and-bolt works, springs, ball bearings, tools, cutlery, and hardware).
FC	19	Motors, turbines, pumps and machines n.c.e. (steam, gas, combustion and hydraulic motors, including industrial refrigeration equipment, excluding electrical equipment classified under FQ and transportation materials classified in FS to FW).
FD	20	Farm machinery and equipment (excluding hand tools classified under FB).
FE	21	Machine tools (lathes, drills, saws, milling machines, sanders, reamers, and so on, including other metalworking and woodworking machines, converters and rolling mills).
FF	22	Handling and hoisting equipment, construction machinery.
FG	23	Specialized industry-specific machines (excluding those classified under FD to FF).
FH	24	Weapons (heavy and portable arms, including ammunition).
FI	25	Measurement apparatus and precision instruments (mechanical, electrical and electronic, including medical and surgical equipment).
FJ	26	Clocks and watches (mechanical, electrical, and electronic).
FK	27	Optical, photographic and film-making equipment.
FL	28	Electronic components (lamps, tubes, semiconductors, and integrated circuits).
FM	29	Consumer electronics (radio and television sets, sound recording and reproduction equipment).
FN	30	Telecommunications equipment (radio and television transmitters, telephones, transmission and guidance systems).

Figure 3-3 (cont'd.)

FO	31	Office and computer equipment (traditional and electronic machines, and computers).
FP	32	Household appliances (including household refrigerators and electrical heating systems, excluding lighting equipment classified under FR).
FQ	33	Industrial electrical equipment (motors, generators, turbines, and so on).
FR	34	Electrical equipment and supplies (electrical wires and cables, batteries, accumulators, lamps, sockets, tubes, insulators, and so on).
FS	35	Automotive components (chassis, bodies, and parts).
FT	36	Specific automobiles, motorcycles, and other cycles.
FU	37	Utility vehicles and other land transportation equipment (including rolling stock).
FV	38	Ships and boats (including oil rigs).
FW	39	Products for aeronautical and space construction.
GA	40	Basic inorganic chemical products (including powders and explosives, excluding fertilizers classified under GB).
GB	41	Fertilizers and chemical farm products (insecticides, herbicides, fungicides, and so on).
GC	42	Basic organic chemical products (excluding plastics and fibres classified under GC).
GD	43	Paints, lacquers, varnishes, and stains.
GE	44	Toiletries, soaps, and perfumes (including grooming products, detergents, cosmetics and chemical products n.c.e.).
GF	45	Pharmaceutical products (including veterinary products).
GG	46	Plastics, fibres and resins (including synthetic rubber, continuous synthetic and artificial thread).
GH	47	Plastic articles (articles made entirely of plastic, such as containers and toys, excluding shoes and clothing classified under DE and composite articles classified under EE).
GI	48	Rubber goods (including tires, excluding shoes and clothing classified under DE and composite articles classified under EE).
HA+	49	Iron ore (including waste).
HB+	50	Non-ferrous metallic ore (including waste).
HC+	51	Raw ore n.c.e. (building stone, clay, sand, salt, phosphate, nitrate, flour spar, sulphur, potassium, sodium carbonate, borate, barytine, pyrites, pyrrhotines, arsenic, strontium, lithium, gypsum, asbestos, mica, quartz, feldspar, natural abrasives, graphite, talc, and so on, excluding metal-bearing ores classified under HA and HB and fossil fuels classified under IA to ID).
IA+	52	Carbon and lignite (non-compressed).
IB+	53	Crude oil.
IC+	54	Natural gas.
ID+	55	Other primary energy products (including natural gas condensates).
IE++		Hydro-electricity and geothermal electricity.
IF++		Nuclear-generated electricity.
IG+	56	Coke and solid coal and lignite derivatives.
IH	57	Petroleum derivatives (non-gaseous).
II+	58	Consumer gas.
IJ+	59	Consumer electricity, hot water, and steam.
JA+	60	Grain (excluding processed products classified under KA).
JB+	61	Other agricultural food products (live animals, eggs, fruits and vegetables, tropical products, oil seeds, raw tobacco, excluding processed products classified under KB to KI).
JC+	62	Agricultural products for industry (natural textile fibres, leather, hides and pelts, timber and lumber, raw cork, raw natural rubber, other raw animal or plant materials).
KA	63	Grain-based products (flour, semolina, pasta, baked goods and pastries, and starches).
KB	64	Unprocessed carcasses and plant products (including milk and milk products, excluding soaps and non-edible products classified under GE).
KC+	65	Meat, poultry, and fish (excluding live animals classified under JB).
KD	66	Preserved meat, poultry, and fish.
KE	67	Fruit and vegetable preserves, and other foods n.c.e.
KF	68	Candy, chocolates, and confectionery.
KG	69	Animal feeds.
KH	70	Drinks (alcoholic and non-alcoholic).
KI	71	Tobacco products (excluding raw tobacco classified under JB).
NV	72	Miscellaneous items n.c.e.

Figure 3-3 (concl.)

Services

LA+++	Sales (wholesale and retail, including recycling).
LB+++	Hotel and restaurant services.
LC+++	Transportation (including water supply, excluding gas supply classified under II and electricity, hot water and steam supply classified under IJ).
LD+++	Mail and telecommunications.
LE+++	Services primarily for businesses (including machinery and other rentals).
LF+++	Banking and insurance services.
LG+++	Rental housing and real estate services.
LH+++	Self-dealing real estate services (imputed owner rents and public and private administration).
LI+++	Recreational, cultural, and personal services n.c.e. (excluding domestic services classified under YA).
LJ+++	Marketed teaching and research services (excluding non-marketed services classified under YB and ZB).
LK+++	Marketed health-care services (excluding non-marketed services classified under YB and ZC).
YA+++	Domestic services.
YB+++	Services provided by private administrations.
ZA+++	Public administration and national defence services.
ZB+++	Public teaching and research services.
ZC+++	Public health-care services.

NOTE + = Immovable goods; ++ = non-traded goods; +++ = services; and n.c.e. = not covered elsewhere.

Figure 3-4

Chelem's Geographical Classification System (32 zones)

Code	Chelem zone	Countries included
A	United States	Puerto Rico
B	Canada	
C	France	Monaco, excluding overseas departments and territories
D	EUBL	Belgium and Luxembourg
E	West Germany	West Berlin
F	Italy	San Marino and the Vatican
G	Netherlands	
H	British Isles	United Kingdom and Ireland
I	Scandinavia	Sweden, Norway, Denmark, Iceland, and Finland
J	Alpine countries	Austria, Switzerland, including Liechtenstein
K	Southern Europe	Spain, Portugal, Greece, Turkey, Yugoslavia, Israel, Cyprus, Malta, and other European countries n.c.e.
L	Japan	
MA	Australia, New Zealand	
MB	South Africa	Namibia, Lesotho, Botswana, and Swaziland
NA	American OPEC	Venezuela and Ecuador
NB	Mexico	
NC	Brazil	
ND	Other American countries	Argentina, Columbia, Peru, Chili, and so on, including French overseas departments (Guadeloupe, Martinique, Guyana, Saint-Pierre and Miquelon)
OA	North African OPEC	Algeria, Libya
OB	Middle-East OPEC	Saudi Arabia, Iran, Iraq, and United Arab Emirates
OC	Non-OPEC North Africa	Morocco, Tunisia, Egypt, and Sudan
OD	Non-OPEC Middle East	Syria, Lebanon, Jordan, North and South Yemen
PA	Black African OPEC	Nigeria and Gabon
PB	Black African non-OPEC	Cameroon, Ivory Coast, and so on, including Réunion (O.D.), Mayotte and French Antarctic Territories
QA	South Asian OPEC	Indonesia
QB	India	
QC	South Asian NICs	South Korea, Hong Kong, Singapore, Taiwan (Province of)
QD	Other South Asian countries	Malaysia, Philippines, Thailand, Sri Lanka, Pakistan, and so on, including Oceania n.c.e. and French Oceania territories (Polynesia, New Caledonia, Wallis and Futuna Islands)
R	Soviet Union	Mongolia
S	Central Europe	Albania, East Germany, Bulgaria, Hungary, Poland, Romania, and Czechoslovakia
TA	China	North Korea
TB	Indochina	Vietnam, Kampuchea, and Laos

NOTE n.c.e.: not covered elsewhere.

II Canada's Place in the World Economy in the Year 2000

The discussion of global trends and prospects in Section I provides the essential backdrop for consideration of some more narrowly defined Canadian concerns in the next series of papers. The three principal authors and their respective discussants are essentially in agreement on such forces as globalization, international competition, and the role of technological change. They cover a wide range of related, but nevertheless distinct, issues and, in general, the discussions were characterized by somewhat less consensus than was the case with Block I of the conference. Thus John Helliwell's paper was concerned with such issues as the role of openness in promoting productivity convergence in the international economy, the effects of macro stabilization policies on national performance, and the prospects for international economic cooperation. Marcel Côté concentrated more on the structural characteristics of the Canadian economy that affect its ability to compete and adjust. And Lars Osberg offered visions of ways in which the economy of the future might deal with the socio-economic challenges of change and adaptation.

Globalization of the Canadian Economy

Helliwell agrees with the preceding speakers in that he attaches highest importance to globalization, defined as the process whereby the scope and consequences of human action are becoming less limited by regional and national boundaries. One of the chief consequences of such globalization is the dispersion of production. Design, production of components, assembly and sales of products are distributed over ever-increasing numbers of countries. But in addition to the trade of goods, and transportation and communication services which have been traditionally global, a growing number of other services, led by those of the financial sector, are being globalized.

Helliwell demonstrates that over the 1960-85 period, there took place an impressive convergence of labour productivity and of real GNP per capita among the industrialized countries. Much of the variation in the growth rate of labour productivity and of real GNP per capita among the investigated 18 industrialized countries is explained by the respective levels of these variables in 1960. Low initial levels go hand in hand with higher growth rates as the poorer countries acquire more-advanced technologies. Such convergence, coupled with the higher population of the poorer countries mentioned by the previous speakers, necessarily means that the share of economically advanced countries in world production and trade will further decline.

Defining the openness of an economy as the sum of its real exports and imports constant as a percentage of its real GNP, Helliwell finds that the change in openness of the economies over the 1960-85 period explains a substantial part of the variation of labour productivity growth that has remained unexplained by convergence. Increasing openness leads to increasing labour productivity. However, increasing openness does *not* increase real GNP per capita so that it may well cause important adjustment and distributional problems.

Helliwell argues that there are possibilities of international cooperation to increase the advantages flowing from globalization. The institutions for such cooperation will have to be broadened beyond the G-7 countries, without becoming as large and ponderous as the United Nations. Working groups and consultations could be a reasonable compromise. Long-term issues that could be fruitfully discussed are international tax harmonization, exchange of information and knowledge, and environmental matters. The discussion of structural policies would be useful to avoid beggar-thy-neighbour solutions, to provide encouragement for unpopular domestic policies which are good for the national or world economies, and to discourage the introduction of new structural rigidities as a defensive reaction to increasing globalization. Middle-power countries, such as Canada, have tended to be moderate in their U.N. voting patterns and have shown a willingness to contribute financial and technical resources to international institutions.

As for Canadian national policies, we must recognize that inward-looking policies and the strategies of "counter-attack" (presumably including Paquet's "offensive protectionism") are doomed to failure. Only with an open strategy can we resist the demands for sustained industry-specific fiscal and legal protection. The fiscal savings from winding down support of unprofitable industries should be used to create a tax system that is attractive to internationally competitive firms and a social safety net that helps individuals to develop skills and knowledge needed in a fast-changing world. Helliwell prefers to call such a social policy a "trampoline" rather than a "safety net."

In order to find out whether there is a trade-off between economic growth and inflation, Helliwell tests whether the part of the variance in labour productivity growth and real GNP per-capita growth that is not explained by convergence and change in openness can be explained by inflation. He finds that inflation had a *negative* effect on growth among the 18 industrialized nations during the 1960-85 period. Similarly, big government (a high level of government spending as a percentage of GNP) had a nonsignificant negative effect. Helliwell therefore tentatively concludes that in the long run, institutional or "structural" changes have a better chance to increase labour productivity and GNP per capita than does stabilization policy.

In order to create the "sense of community" recommended by Lars Osberg's paper in this volume, Helliwell considers it necessary to supplement the social security measures with needed educational and retraining opportunities. But to achieve this, three things are necessary. First, social groups and individuals must have realistic expectations and refrain from making demands on governments that necessitate the raising of tax rates or debt. Second, governments must have the means and the mandate to fulfil their task. Clear division of responsibilities and separation of tax bases and rates could help to reduce distributional conflicts between levels of governments. This, in turn, would make possible the third requirement: a clear accounting of, and accountability for, each government's performance.

Yoshihiro Tsurumi amplifies further the description of the world economy of the year 2000. Not only will it be globalized, but also "turfless," i.e., conventional demarcations between industries will become increasingly blurred. As mentioned by previous speakers, the importance of the high-tech industries and services – particularly financial services – will continue growing, and this will reinforce the economic value of information, while the relative importance of energy and raw material inputs will continue to decline. Proactive business decision making will be increasingly necessary for success. Tsurumi anticipates two more features of the economy of tomorrow: an inseparable entanglement of economics and politics (thus echoing once more a motif of Block I of the conference) and a worldwide shortage of savings.

Tsurumi has three recommendations for the Canadian government. First, force the emerging "infant" industries to compete initially at home and subsequently abroad. Second, recognize Canada's need for real capital investment. Low rates of inflation and a stable or even rising Canadian dollar would attract capital. As Canada's exports will have to switch from resources to high value-added products, success will require high investments in marketing logistics in foreign markets. These investments are cheaper to buy if our currency is strong. Third, Canada has to educate itself about the peoples, cultures, economies, and politics of the Pacific Rim.

Competition and Industrial Structure

The globalization of the world economy and the need for the Canadian economy to remain competitive will require big structural changes in Canada. What will these changes be, and will Canada be able to rise to the challenge?

Marcel Côté answers optimistically, based on his examination of the 1970-85 period. He enumerates a number of big shocks of the past, which we have, in his opinion, successfully withstood. These are:

- the collapse of the Bretton Woods Agreement and the subsequent violent exchange-rate fluctuations;
- the rising economic multipolarity and convergence in economic productivity;
- the oil shocks;
- the computer revolution;
- the worst recession since the 1930s; and
- the severe political problems in Quebec and in the Canadian federation.

Nevertheless, in Côté's view, Canada's economic performance has been quite respectable, and we adapted well to these shocks.

Many of the structuring forces of the next 15 years will be similar to those of the immediate past. Headlong technological change, further convergence of the productivity of industrialized nations and NICs, extension of tariff reduction to nontariff barriers, further exchange rate fluctuations, the need to keep regulation of business in step with that of the United States, rising real incomes and the attendant restructuring of the pattern of consumption, and an increasingly sophisticated macroeconomic policy making – these will be the main structuring forces in Côté's opinion, and all are extensions of a past which Canada has weathered relatively well. The public fears several other difficulties, but

Côté dismisses them more or less summarily. These are: another oil crisis, North-South tensions, changes in the Soviet Union, another stock market crash, the persistent government deficits, and the danger of ecological catastrophes. Côté thinks we shall be able to handle them all.

Reviewing expected changes in industrial structure, Côté expects Canadians to remain "prosperous drawers of water." The grain economy will continue its decline and metal mining may have to contend with depressed prices, while natural gas, electricity, and aluminum will do well. In manufacturing, changes in production methods will place more importance on economies of scope and flexibility as opposed to economies of scale. This will open valuable opportunities to the small-sized Canadian manufacturing firms, particularly if the float of the exchange rate is maintained.

Canada will continue to have difficulties in *developing* leading-edge high technology because of our political tradition of distributing university research funding on the basis of enrollment and geographic considerations. This is not conducive to the development of centres of excellence. As far as *adopting* high technology is concerned, we are only a few months behind the United States.

In Côté's view, regional disparities will continue to plague Canada. However, it is noteworthy that while the range of per-capita production varies from 50 in Newfoundland to 120 in British Columbia and Alberta (with the national average equal to 100), the range of average household disposable income is much narrower – from 80 to 111. This is an indication of the redistributive success of the Canadian political system, which is all the more important because, in Côté's opinion, efforts by the resource-rich provinces to diversify into manufacturing are not likely to succeed, and the most heavily urbanized areas will prosper most between now and the year 2000.

On the whole, Côté expects Canada to repeat its 1970-85 performance by further reducing its productivity gap versus the United States. Free trade will reorient Canadian business along a north-south axis and lead to organizational integration between the two countries. The beneficial effect of this reorganization depends crucially on the entrepreneurial dynamism of Canadians and on the maintenance of the floating exchange rate.

Ken Norrie begins his discussion of Côté's paper by calling it "incredibly optimistic." Norrie maintains that in the past we had to deal with a number of problems not mentioned by Côté, and we have not succeeded in solving them. For example, we have experienced a severe productivity slowdown, and still do not know whether it is a self-correcting short-run phenomenon or a long-term structural problem, which will involve painful adjustments. Our federal-provincial political difficulties are more severe than Côté assumes. Province-building has led to the erection of internal barriers to the flow of goods and factors of production. Our labour market has undergone big changes: Prime Minister Diefenbaker ran into serious political troubles when unemployment rose to 7 per cent; Prime Minister Mulroney boasted that his government managed to reduce unemployment below 8 per cent. At the same time, there has arisen what Courchene calls "the protected society." How can the economy be flexible and adaptive when innumerable interest groups expect that the government will protect them from all the vicissitudes and disciplines of the marketplace?

In addition to those unsolved problems of the past, Norrie expects some additional ones for the future. He thinks that we shall make little further progress in multilateral reduction of trade barriers through GATT. Also, the problems of the ever-growing service sector *are* different from those of the traditional goods industries. Experience has shown that exchange rates are not as flexible a corrective device as Côté assumes, because they can remain too high or too low for substantial periods. Norrie finds Côté's quick dismissal of the problems of municipal infrastructure, government deficits, and the worries of ecological pessimists too glib. The financing of the social transfer payments to our aging population and of our other social programs is rapidly approaching a crunch. And while Norrie thinks that an explicitly interventionist industrial strategy is harmful, Côté may underestimate its political attractiveness. In consequence, we may get not one, but 11 of them.

Distributional Issues

The continuing, perhaps accelerating, structural changes in Canada expected for the coming decades will necessarily entail changes in income distribution. Lars Osberg begins his discussion of distributional issues and the future of the welfare state with a summary description of Canada's distributional problems and policies in the 1980s and how societal changes, the severe recession early in the decade and high unemployment thereafter, and the shift from goods-producing to service industries have increased the tendency towards inequality of income. Massive policy intervention by the Canadian state has succeeded in reducing poverty, particularly among the elderly, but there is an increasing incidence of poverty among children and continuing regional disparity in incomes and employment opportunities. On the whole, over the postwar period, Canada has experienced a remarkable stability in the distribution of annual family income. According to Osberg, the welfare state in Canada is dominated by "social insurance" programs, which aim primarily at evening out income flows over the life cycle, but not at redistributing income from the rich to the poor.

As for the future, Osberg considers four major forces as having important income-distributional effects: technological change, international trade, the age structure of Canada's population, and ecological decay.

Technological change will put a premium on the ability to learn new skills easily; however, 24 per cent of adult Canadians are functionally illiterate. This is not due entirely to the fact that our older workers have received less education than our younger ones. Even among the recent products of our educational system, those aged 18 to 24, the functionally illiterate amount to 17 per cent, and many of the literate have only the most rudimentary mathematics or science skills. The adjustment costs of technical change will fall, to a disproportionate extent, on the poorly educated.

International trade, and therefore international competition, will extend more and more from traditional goods to services – particularly to the information-related ones. Specialized providers of business services depend heavily on their reputation and business relationships, which they have built up over time with major clients. Now because of the Canada-U.S. Free-Trade Agreement, Canada will have to accord national treatment to U.S. service providers. Big American firms with worldwide reputations and contacts will find it relatively easy to invade the Canadian market. Conversely, however, the smaller and less well-known Canadian firms will find it difficult to penetrate the U.S. market. So, overall, Canadian business service firms will be at a disadvantage and may suffer job losses. These examples illustrate the interdependence between national policies of international trade, education, science policy, labour force adjustment, and income distribution.

The aging of Canada's labour force – a consequence of the baby bust following the postwar baby boom – will also have distributional consequences. Older workers find career changes less easy than do young ones. This reduces the flexibility of the labour force. Also, changes in technology and industrial structure hit various regions differently. Interregional migration can act as a safety valve, but older workers are, with good reasons, less likely to relocate. In the longer run, the issues of size, indexation, and funding of transfer payments to the elderly, which involve the intergenerational distribution of income, will become a matter of increasing political concern.

It is becoming clear that the question of environmental decay is turning into a major distribution problem. The greenhouse effect would hit provinces with big agricultural sectors or forest industries more heavily than provinces with strong manufacturing industries. Rising sea levels would necessitate heavy spending in coastal provinces. Also, preventing or cleaning up pollution would reduce the consumption of the present generation, but future generations would suffer if we neglected to make the necessary sacrifice. Thus the whole complex of environmental protection constitutes an intergenerational income distribution problem.

Canada can respond to these distributional challenges with one of two political approaches. Osberg designates these as the limited welfare state (LWS) and the social contract (SC). Each is the reflection of a differing social philosophy.

The limited welfare state vision is based on a macroeconomic view that attaches less importance to fighting unemployment than inflation. Unemployment is regarded as partly voluntary, partly structural, and cannot, in the long run, be reduced by traditional Keynesian policies. A high level of unemployment, of course, increases the inequality of income distribution. It also raises the demand for services provided by the welfare state. This leads to demands for refocusing of the welfare programs to the truly needy. The administration cost of such programs is low particularly if they are universal, but proponents of the LWS think that the value of lost national output is high when individuals adjust their work behaviour to the high tax rates required to finance the programs.

If such social costs are high and *if* our social insurance role could be replaced by private programs (or public programs that mimic private ones with user-cost financing or actuarially sound premiums), then the social insurance role of the welfare state could be reduced. It would then be justified to disentangle the social insurance and social assistance roles, which would, in turn, permit better targeting of assistance.

This vision of the welfare state has clearly designated responsibilities, in the sense defined by Helliwell's paper. It would be the duty of the Bank of Canada to control inflation through monetary policy; the Department of Finance would reduce the deficit through fiscal policy. Microeconomic policies would be instituted to reduce unemployment. Minimum wage legislation and payroll taxes, which are perceived as reducing the demand for labour, would be viewed with little sympathy, as would the unions and their demands for constraint on layoffs or for severance pay. On the labour-supply side, some retraining and mobility assistance is acceptable to proponents of the LWS. Much emphasis is laid on the need to reduce the disincentives implicit in the welfare trap, where the high effective tax on additional income discourages social assistance recipients from accepting employment. Proponents of the LWS are in favour of a negative income tax to deal with the social assistance role.

The alternative social contract vision is exemplified by Sweden, Norway, and Austria. These countries have achieved a combination of low unemployment, moderate inflation, respectable productivity growth, low levels of poverty, and little inequality. These countries have a broad concept of the welfare state. It does not only include redistribution of income between the life-time rich and poor and over the life cycle, but involves also an increasing provision of common public services by the state. This helps to create a sense of community. In Osberg's words:

> If individuals must bear all the costs of change, yet have, in practice, some power to impede change, it may be in their immediate self-interest to block change to the maximum extent feasible. But if everyone acts only in their immediate self-interest, societally desirable change will be impeded. By offering something to just about everybody, the welfare state embodies a social contract which says that since economic adjustment is socially necessary, adjustment costs will be socially shared.

Of course such a policy is vitally dependent on full employment, but the assurance of full employment brings with it wage restraint and a willingness to participate in institutionalized country-wide wage-setting. In such a system, the social insurance and social assistance roles are so intertwined that they cannot be treated separately. It is noteworthy that some large corporations such as IBM and the Zaibatsu of Japan are internally mimicking the implicit social contract and profiting from it. But even giant corporations such as U.S. Steel may not be able to behave like private welfare states on their own in times of rapid technological and organizational upheaval.

Discussing Osberg's paper, Thomas J. Courchene emphasizes that Canada differs radically from the countries which have adopted the social contract approach. Canada's population is heterogeneous, thinly spread out, split into relatively narrow interest groups, and has a federal form of government. By contrast, Sweden, for example, has a homogeneous, relatively compact population, broad interest groups (e.g., collective bargaining is essentially nationwide), and forms a unitary state.

Given Canada's present nature, Courchene prefers a more market-oriented and decentralized social system that permits social experimentation by the provinces. However, he recognizes that a number of distributional problems await solution. For example, many arbitrary windfalls caused by inflation and extremely high salaries of industrial leaders are hard to justify as reflecting social productiveness, particularly when workers are expected to face the risk of joblessness or income reduction because of technological change. Moreover, Courchene thinks that we shall have to rethink the whole educational system and guarantee that access to the new information technology will not be restricted to the well-to-do.

Another problem that has arisen in the recent past relates to the growing government sector. More and more private goods have been supplied, or are planned to be supplied, by the state (Courchene cites day care as an example). But, as the public purse is not inexhaustible, this tendency has led to increasing privatization of what used to be regarded as collective goods such as police, research, and culture.

Courchene also suggests that recent political developments will have important, and perhaps unexpected and unintended, effects on our social programs. He regards the Charter of Rights and Freedoms and the associated increasing role of the Supreme Court as one of them. Another is the Meech Lake Accord which, in his opinion, through the use of shared-cost programs, provides an ingenious way to by-pass the jurisdictional problems that may obstruct otherwise efficient or equitable programs.

Conference Discussion

The discussion of Block II centred around two sets of questions. The first of these emphasized the connection between Blocks I and II in the sense that it dealt with globalization and the challenge it poses for Canada. A questioner from the floor asked whether Canada should try to establish a close economic relationship with other countries beyond the free-trade agreement with the United States and membership in the Cairns Group concerning agricultural subsidies in the GATT Uruguay Round. Helliwell expressed preference for strengthening multilateral trade. Norrie emphasized the importance of expanding trade with the Pacific Rim countries. Tsurumi agreed and attached particular importance to Canada developing exports of manufactured goods.

As for Canada's comparative advantage, both Helliwell and Norrie thought that natural resources will remain important export products for a long time in the future. Norrie also pointed out that many natural resource industries are high-tech industries. In Helliwell's opinion, in a globalized world economy, a country's comparative advantage will not be in particular industries or products but in particular niches or processes. Tsurumi emphasized that usually people talk about a country's comparative advantage in a particular industry or product as something given and therefore a static concept. Such views would not explain the speed and scope of economic change. Comparative advantage is, in Tsurumi's view, a useless notion; Canada should try to learn from the Asian "dragons" that economic success can be achieved by purposeful policy.

In Helliwell's view, convergence could mean a reduction in Canada's productivity growth as we approach the U.S. productivity level; however, we must recall that, in contrast with the postwar decades, it is no longer best U.S. practice that we should try to emulate but the industry-specific best *world* practice. Even if we rise to this challenge, convergence implies that our share in world GNP and trade will decline. Furthermore, the convergence of industrialized nations could cause environmental problems which may slow down the world's future productivity increase. Lesourne questioned whether multilateralism is really so important for Canada when 75 per cent of its foreign trade is with a country that, in itself, constitutes an immensely big market. In consequence, there may be social problems, but not problems of structural change.

The discussion of the second set of questions was triggered by a speaker from the floor who deplored that not enough weight had been placed on the human dimensions of the topics discussed in Blocks I and II. In this respect, it is noteworthy that Helliwell, Tsurumi, Osberg, and Courchene, all did, in fact, emphasize the need for education and training of the Canadian labour force. Tsurumi also thought that we could learn from the Japanese example and from the Confucian view of life, which regards humans as the crucial renewable resource. He condemned what he called the North American "neutron-bomb mentality" that attaches higher value to bricks and machines than to human beings. This approach is self-defeating, because workers have to have job security if they are to be receptive to changing technology. A speaker from the floor maintained that a safety net is all very well, but there are demands for a safety blanket, and maybe a pacifier as well! Osberg retorted that we cannot expect mobility from workers if there is no reasonably full employment. Also, it is the young worker who is most mobile, and we cannot expect the same mobility from those over 45. Indeed, Helliwell deplored that our system has become one of safety nets for enterprises rather than for people.

In this way the discussion of Block II led quite naturally into the subject of Block III, "Employment/Human-Resource Development."

Despite some widely ranging views, a few broad points of agreement may be identified. First, an explicitly outward-looking, fiercely competitive attitude is necessary to cope with the forces of globalization. Second, technological sophistication and an emphasis on knowledge-intensive activities will be crucial. Third, the new industries and technologies that emerge in the process of economic transportation will require major adjustments not only in production but also in distribution. Fourth, and closely related to the third point, fullest realization of emerging potential will require close cooperation of the major economic actors, and that cooperation depends in turn on a perception that the benefits and costs of adjustment are equitably shared. Finally, intelligence and skills will be vital ingredients of success. Human-resource development – the subject of the next section – will be a major policy concern in the new millennium.

4 Globalization and the National Economy

John F. Helliwell[1]

Globalization is the process whereby the scope and consequences of human actions are becoming ever less limited by regional and national boundaries. The pace of globalization is given principally by changes in communications and transportation technology. Worldwide increases in education and income levels have accelerated the process, while vast remaining international differences in incomes, skills, and resource endowments provide much of the economic fuel.

Globalization of economic activity has profound effects on the possibilities and performance of national economies and provides new needs and directions for international cooperation and national economic policies. Analysis of national economic performance and international trade has not yet fully come to grips with the effects of globalization. Nor have national policies or international cooperation, for that matter, as policies (ranging from tariffs to various types of aid to distressed industries) in many countries seem designed to shelter domestic residents and industries from the winds of change. While the attractiveness of such policies may seem great in the short term, I shall argue that in the longer run they will have the effect of assuring that domestic residents bear the costs without receiving the employment and higher incomes potentially available to those who exploit the opportunities provided by fast-changing world markets.

I shall start by describing what seem to be some of the key long-run features and consequences of globalization and then spell out some of the likely opportunities and risks for international and Canadian policies in this longer-term context.

Consequences of Globalization

Bits and Pieces from Everywhere: The Dispersion of Production

Many products already have global sources and global markets and this trend seems certain to continue into the next century. While trade theory and policy have analysed mainly the production and sale of national products on global markets, trade decisions in the future are likely to relate increasingly to the distribution of design, production, and assembly of products whose components are manufactured in a number of countries. For example, Hirohiko Okumura (in an unpublished presentation to a seminar at the Japanese Economic Planning Agency in March 1988) emphasizes that some of the most important future changes in the Japanese current balance are likely to come not from Japanese imports of standard U.S. goods, but from the establishment of plants outside Japan to make "Japanese" goods for Japanese and world consumption. Okumura reported projections by Japanese car makers that their foreign manufacturing would rise from 15 per cent of their total production in 1984 to 30 per cent by the year 2000. For consumer electronics, foreign production by Japanese firms is projected to rise from 22 per cent in 1985 to 50 per cent by the year 2000. In the latter case, the production is mainly in the Asian NICs, while for cars it is more widely spread.

Globalized Services?

Most analyses of production and trade relate mainly to goods, while an increasing proportion of final expenditures are on services traditionally thought of as non-traded. However, services are also becoming more globalized. Although its full implications are still only dimly perceived, the global financial market has already arrived, tended by glowing screens that never sleep. Transportation and communications services, which have done so much to globalize other activities, are inevitably becoming globalized themselves, often in the face of national policies attempting to reverse the tides.[2] Meanwhile, the search for roots, history, sun, snow, or the perfect wave has become a global search that is still constrained by budgets but seldom by national boundaries.

Among the remaining service expenditures, those for housing, health, and education remain largely national, although universities, technical journals, and those receiving organ transplants, all depend on global markets even if their main financial support comes from regional or national sources. The educational trends identified by George Psacharopoulos [1988] – more widespread demands for education at all levels, the escalation of the problem of educational finance, and the increasing ties between technology and education – are likely to combine with the falling costs of transportation, and especially communication, to globalize education itself. Students will search more widely, and at more stages in their careers, for new skills and new educational opportunities, while the satellite will increasingly be used to deliver knowledge and training to hundreds of millions who have yet to achieve literacy, while continuing to permit the sophisticated searches for applicable specialized knowledge to be carried out with almost equal ease all over the globe.[3]

Convergence: Evidence and Implications

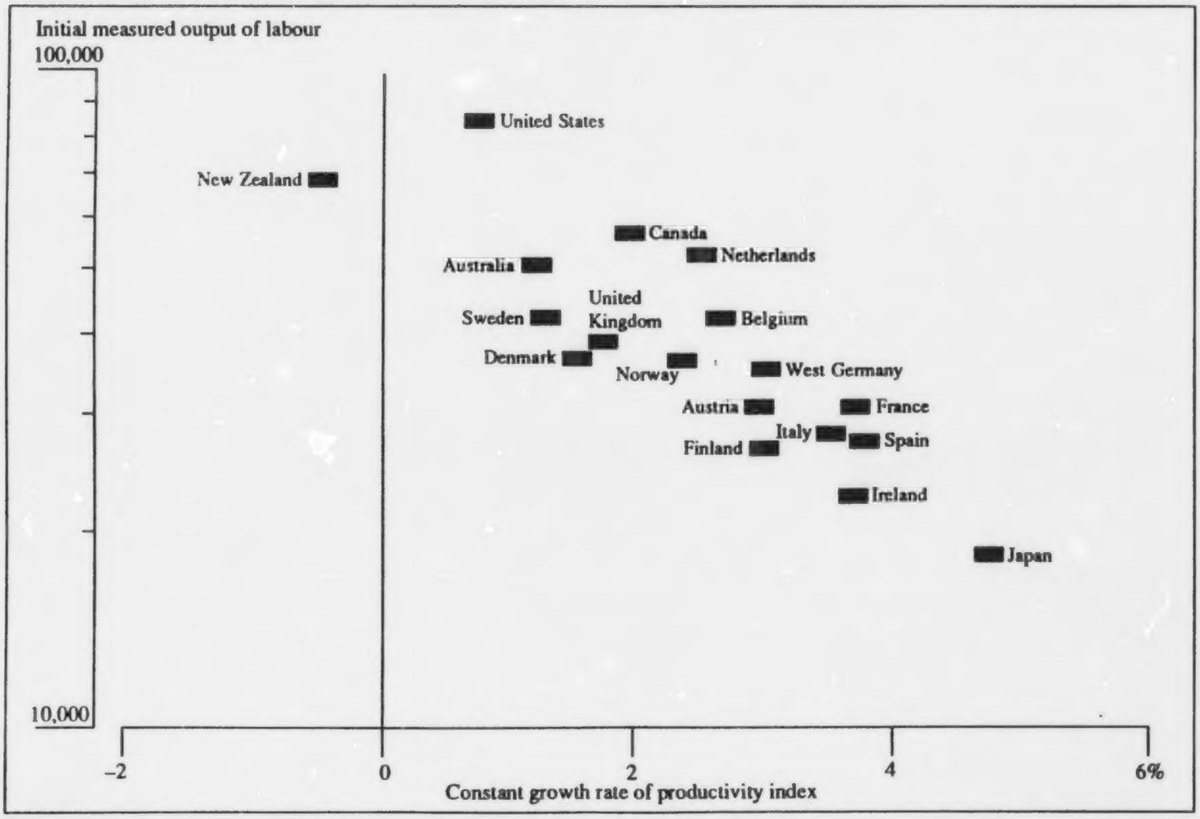
Globalization and the remaining international income disparities are likely to lead to continued international convergence in the rates of growth and eventually some convergence of levels of real per-capita income as the poorer countries come to know and to exploit the possibilities for higher income and productivity.[4] The comparative education statistics reported by Psacharopoulos [1988] show quite clearly that rising literacy rates have played an important part in the catching-up that has taken place so far, and that the remaining gaps in education levels indicate much potential for further convergence.[5]

Continued convergence of income levels implies that the currently rich industrial economies will be responsible for smaller shares of world production and trade as time passes. This would be true even if world population shares were constant, as the convergence evidence is based on per-capita income. The result becomes even stronger when population changes are taken into account. As Lesourne [1988] reports, the demographic trends are such that the share of world population accounted for by North America, Western Europe, and Japan is likely to fall by one third, from 18 to 11 per cent, over the next 35 years.

In order to assess the national benefits and costs of globalization, and hence of policies that may encourage or dis-

Chart 4-1

Growth of Labour Productivity and Initial Measured Output of Labour, 1960-85



courage its pace, it is useful to assess the available evidence on the linkages between openness and economic growth. A recent study of the relative growth rates of income and productivity in the G-7 countries and 11 smaller industrial economies from 1960 to 1985 has tested whether economic convergence has been much in evidence and if productivity growth is linked to changes in openness.[6] The results indicate not only significant international convergence of rates of growth of per-capita income and productivity, but also evidence that the countries increasing their openness[7] most over the past 25 years achieved higher rates of productivity growth than other countries that opened less rapidly to foreign trade.[8] Chart 4-1 shows average rates of productivity growth from 1960 to 1985, for each of 18 industrial countries, plotted against their 1960 productivity levels. The negative relationship central to the convergence hypothesis shows up quite clearly. Three quarters of the international variation in average productivity growth rates is apparently explained by the convergence hypothesis, as shown by equation 4.1 in Appendix A. Only for the Netherlands (for which productivity growth was higher than predicted) and New Zealand (whose actual productivity growth was below that predicted, probably due to the changing fortunes of its externally exposed sheep and butter production) had productivity growth rates that differed by as much as 1 per cent from those predicted by equation 4.1. The relationship suggests that a country with a productivity level 10 per cent below that of its neighbour had average annual productivity growth 0.3 per cent higher. According to the convergence hypothesis, this growth rate difference would gradually be eliminated over time, as shown in the dynamic modelling in Helliwell and Chung [1988].

Chart 4-2 and the matching equation in Appendix A show that a similar convergence relationship exists between the average growth and initial levels of real GNP per capita, although the fit is less close. Japanese growth of GNP per capita is 1.5 per cent higher than would be predicted by the simple convergence model, while that of Ireland and New Zealand is below what would be expected. Inspection of

Chart 4-2

Average Growth and Initial Levels of Real GNP per Capita, 1960-85

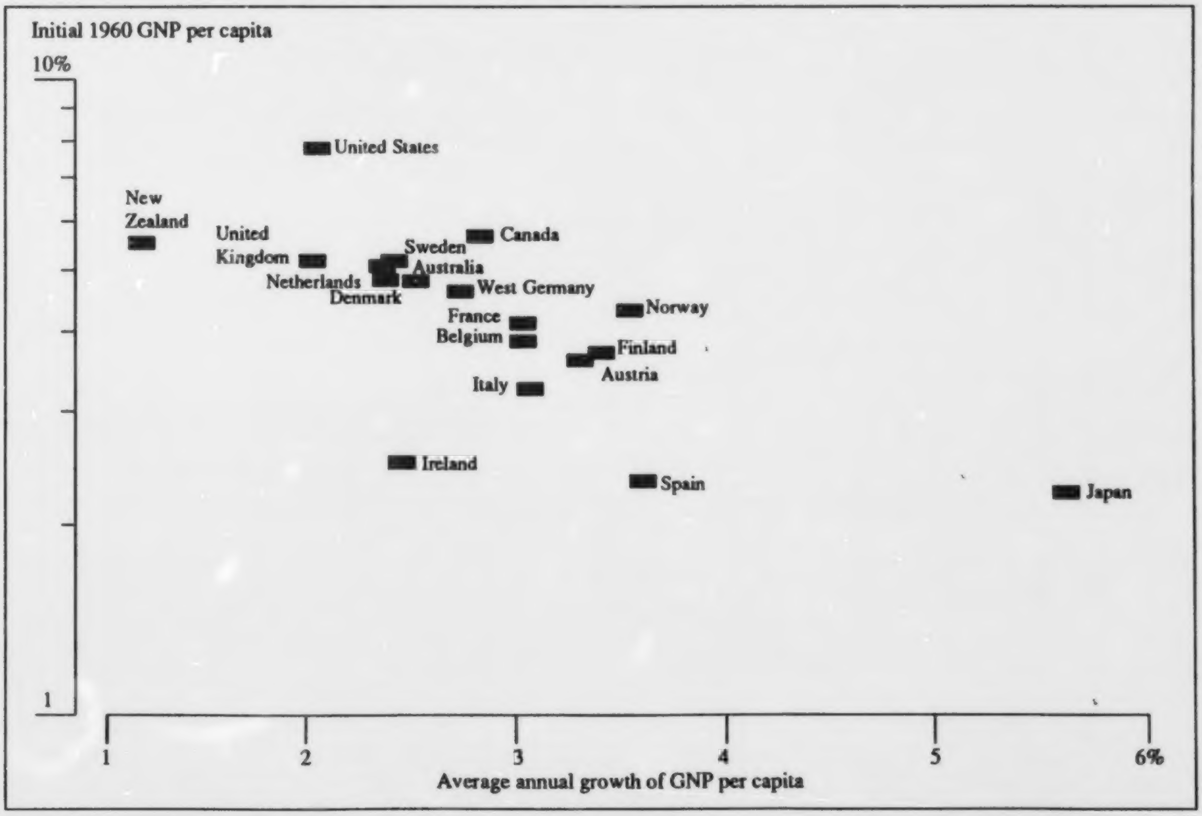


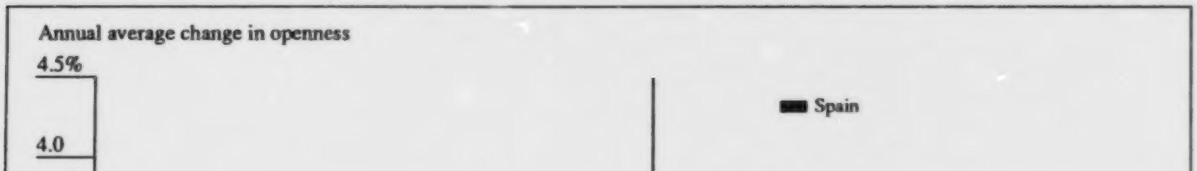
Chart 4-1, however, shows that Japanese productivity growth is only slightly higher than would be predicted by the convergence hypothesis. Thus most of the excess per-capita GNP growth indicated for Japan in Chart 4-2 is due to the fact that the Japanese investment rate, and hence the growth rate of its capital stock, is substantially above those in other countries.

A modest but statistically significant fraction of the remaining international differences in productivity growth is explained by differences in openness, as shown in Chart 4-3 and described in more detail in Appendix A. Countries that have done most to open themselves to external trade have had faster rates of productivity growth, presumably because the process of technology transfer that is central to the convergence process is either facilitated by trade or by the same open stance that encourages the expansion of trade.

Chart 4-4 shows that the effects of changes in openness do nothing to explain the unexplained differences in growth rates of real GNP. The reasons for the differences between Charts 4-3 and 4-4 are shown by the correlations reported in Table 4-1. In Helliwell, et al. [1986], it is shown that growth in per-capita GNP can be decomposed into the growth of output per employee (adjusted for changes in capital input, as explained in Appendix A), changes in the capital intensity of production, changes in the share of output paid to foreign-owned factors, changes in the demographic structure,[9] changes in the labour force participation rate, and changes in employment as a fraction of the labour force. Table 4-1 shows the correlations between the changes in openness and each of these component ratios, so as to show why it is that the correlation between changes in openness and labour productivity growth (as shown in Chart 4-3) is much stronger than that between openness and growth of real income per capita (as shown in Chart 4-4). Demography, changes in employment rates, and especially changes in labour force participation have all contributed to the explanation. Thus countries that have increased their trade shares most rapidly over the 1960-85 period have tended to

Chart 4-3

Changes in Openness and Growth in the Labour Productivity Index, 1960-85



have less rapid increases in employment rates and participation rates. From the data relating to individual countries, the effects appear to stem mainly from three EEC countries (France, Spain, and Ireland) that had especially large agricultural employment at the start of the period, that became much more open to trade over the following 25 years, and that had substantial reductions in the employment and participation rates.

The differences between Charts 4-3 and 4-4 suggest that there may well be important adjustment and distributional issues posed by the positive effects that openness appears to have on the rate of potential productivity growth. The evidence on comparative growth performance, and especially on the role of changes in globalization, is the subject of continuing research designed to clarify the data reported in both parts of Charts 4-3 and 4-4 and in Table 4-1. In the meantime, some of the possible issues posed for national policies are discussed later in this paper.

Globalization and Economies of Scale

Globalization is held by some to be a consequence of economies of scale, and hence inherently threatening to small firms and small countries, and inherently favourable to those that are already established. However, it is perhaps more convincing to see the microchip and the satellite as enabling low-cost additions to product variety by reducing the cost advantages of long production runs and by increasing the ease with which production processes can be subdivided to achieve standardization (as in the case of basic computer memory chips) of some components while adding to the diversity of final products. Volatility and uncertainty may also favour smaller ventures, which may gain in flexibility what they lack in balance-sheet strength. Even where large enterprises remain dominant, they are increasingly likely to operate on a global basis and distribute their production more widely to take account of international differences in costs.

Chart 4-4

Changes in Openness and Growth in Real GNP per Capita, 1960-85

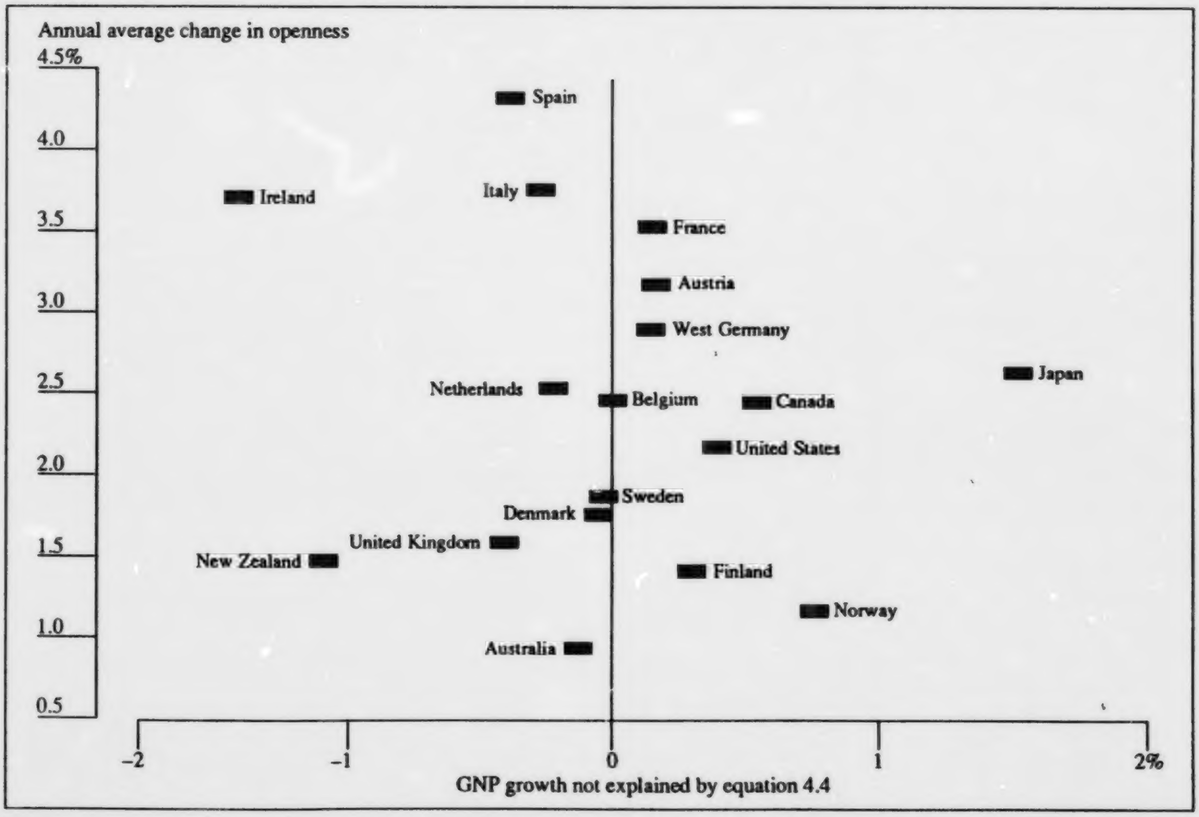


Table 4-1

Decomposition of Changes in Real Income per Capita for the Industrial Countries,[1] 1960-85

	RGNPCAP	*LPROD*	*KIN*	*EMLF*	*LFNPOP*	*NPOPPOP*	*FOREIGN*	*DOPEN*
Japan	5.60050	5.19700	0.34961	−0.03703	−0.17805	0.26050	0.03093	2.67154
Spain	3.59423	3.98280	0.83519	−0.87318	−0.37410	0.06211	−0.04767	4.34632
Norway	3.52995	2.46521	0.19540	−0.04947	0.73654	0.06902	−0.03738	1.19324
Finland	3.38325	2.90854	0.48399	−0.13861	−0.02057	0.35606	−0.07381	1.43702
Austria	3.28241	2.62687	0.99386	−0.07078	−0.28730	0.10811	−0.01283	3.20606
Italy	3.04146	3.56219	0.11459	−0.19504	−0.43749	0.11088	−0.03282	3.77258
France	3.02113	3.56574	−0.14456	−0.38440	−0.26500	0.23794	−0.04001	3.55854
Belgium	3.01421	2.36953	0.78380	−0.38441	0.16777	0.16998	−0.03801	2.48661
Canada	2.79945	1.90865	0.01446	−0.17877	0.63476	0.59415	−0.10994	2.47052
West Germany	2.72118	2.86520	0.43868	−0.30579	−0.30125	0.12773	0.02448	2.92103
Denmark	2.50471	1.80886	0.45464	−0.22308	0.51583	0.14079	−0.17387	1.77430
Ireland	2.44283	3.52649	0.33025	−0.53345	−0.36700	0.08108	−0.48884	3.71193
Sweden	2.39112	1.44229	0.66504	−0.04867	0.39443	−0.07970	−0.11288	1.88420
Netherlands	2.35223	2.21616	0.75515	−0.51017	−0.11843	0.46384	−0.02795	2.54917
Australia	2.33501	1.32678	0.74734	−0.28874	0.24569	0.37339	−0.08071	0.95903
United States	2.02945	1.12320	0.13750	−0.07499	0.43471	0.42546	−0.02943	2.18948
United Kingdom	2.00048	1.72951	0.36196	−0.44173	0.12578	0.04291	0.07232	1.59961
Switzerland	1.95283	1.24063	0.76586	−0.03941	−0.22334	0.13641	0.13338	2.60937
New Zealand	1.19354	−0.39402	1.32226	−0.16203	0.15566	0.42759	−0.14950	1.49011

Correlation matrix of variables:

RGNPCAP	1.0000							
LPROD	0.85381	1.0000						
KIN	−0.28007	−0.41666	1.0000					
EMLF	0.55792E-01	−0.29012	−0.83979E-01	1.0000				
LFNPOP	−0.20613	−0.54048	−0.14054	0.40002	1.0000			
NPOPPOP	−0.13267	−0.27106	−0.45549E-01	0.11285	0.24777	1.0000		
FOREIGN	0.17251	−0.18773E-01	0.35959E-01	0.24601	−0.52319E-01	−0.50649E-02	1.0000	
DOPEN	0.28247	0.62602	−0.16392	−0.49143	−0.74135	−0.24870	−0.11104	1.0000

Descriptive statistics:

	N	Mean	St. dev.	Variance	Minimum	Maximum
RGNPCAP	19	2.7995	0.91496	0.83715	1.1935	5.6005
LPROD	19	2.3932	1.2641	1.5979	−0.39402	5.1970
KIN	19	0.50553	0.36795	0.13539	−0.14456	1.3223
EMLF	19	−0.25999	0.22037	0.48565E-01	−0.87318	−0.37029E-01
LFNPOP	19	0.44139E-01	0.36917	0.13629	−0.43749	0.73654
NPOPPOP	19	0.21623	0.17723	0.31410E-01	−0.79696E-01	0.59415
FOREIGN	19	−0.62872E-01	0.12636	0.15968E-01	−0.48884	0.13338
DOPEN	19	2.4648	0.95335	0.90887	0.95903	4.3463

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[1] The ratios are defined as annual averages, 1960-85.

RGNCAP = *(YGNP/PGDP)/NPOPT*
LPROD = measured labour productivity = *LNELF*
KIN = capital intensity = *LOG (Q/N) − LNELF*
EMLF = *N/LF*
LFNPOP = *LF/NPOP*
NPOPPOP = *NPOP/NPOPT*
FOREIGN = *(XID-MIY)/PGDP*
DOPEN = *(X + M)/GNP*.

The advantages of the large over the small may eventually come to relate more to marketing and finance than to factory design and size. Even here, there is evidence, especially apparent in computing devices, that no-name products can compete very effectively with expensively advertised brand names. An interesting case came recently before a consumer protection agency in the United Kingdom where a leading retailer has a successful house brand of electronics goods labelled "Matsui" accompanied by a rising sun and motto "Japanese Technology Made Perfect." The products were assembled from parts made in Taiwan, Malaysia, South Korea, Yugoslavia, and Britain, with no Japanese content beyond the label and the slogan. The tribunal held that the firm could continue to use a Japanese-sounding name, but must remove the motto. The continued success of the brand would tend to suggest that globalization has indeed lowered entry barriers facing potential producers and marketers of electronic and other branded goods.

Although there is much talk of winners and losers, globalization inherently offers opportunities and risks for all. The successful countries, like the successful individuals and enterprises, will be those that are flexible enough to adapt to change, treating it as an opportunity rather than a threat.

The biggest risks are probably posed by national policies that react defensively to protect declining activities, or subsidize new activities, in the inevitably vain attempt to compete with similarly subsidized activities in other countries. The risks are to the international system itself as well as to the economic health of the individual countries adopting such strategies.

The Japanese Example

Looking across the industrial countries, Japan provides the best example of a country that has generally accepted and exploited the opportunities provided by globalization. The so-called "hollowing-out" as Japanese heavy industry moved abroad after various shocks ranging from high oil prices to the high yen has, from time to time, caused alarm and even hardship in Japan, but never has the wisdom of the adaptive strategy been doubted. The payoff, in terms of permitting Japan to remain competitive at ever higher values of the yen by continually shifting and refining production to cut costs and improve products, has surprised even many Japanese experts.

From the global perspective, perhaps Japan has been so successful because the need for and benefits of globalization have been more obvious there. While the countries of the EEC were opening doors to each other and reaping the undoubted benefits therefrom, they were often cementing their unity by opening up less to the rest of the world. Japan, being a major industrial country but outside a trading bloc, was opening up to the entire world and finding, as might be expected, that trade can produce the greatest benefits when it is undertaken by countries that differ very much in incomes and resources.

While Europe and North America each have about 5 per cent of the world's population, South and East Asia have over 50 per cent, and Japan is becoming the centre of that fast-growing area. With 5 per cent of Asia's population and 50 per cent of Asia's GNP, i.e., with real incomes 10 times as high as those in the continent as a whole, the Japanese might well have felt threatened by low-wage competition. By accepting these differences as providing opportunities rather than threats, Japan has been able to enjoy the real income advantages of a high yen while still maintaining an enviable rate of growth of domestic output and employment.

If national policies can embrace and exploit the inevitable globalization of economic activities, this would permit the removal, even if gradually, of a number of the more wasteful national or regional policies designed in the mistaken hope that "defence" or "counterattack" is a feasible strategy for any country, and especially a relatively small and open one such as Canada, to respond to changes in the global economy.

Implications for International Policies

What are the possibilities for increased international cooperation to harness and support the opportunities provided by increased globalization? Three main points should be made.

With respect to the process of international economic cooperation and especially the economic summits involving only the seven largest economies, it is important to search for ways to broaden and "globalize" the interests represented.

Looking ahead, the institutions for international economic cooperation need to become more representative while still avoiding ponderous U.N.-like scale. One procedure would be to use working groups and consultations, making conscious attempts to ensure that agreements among the large countries take a form that can be consistently applied to a world in which an increasing share of growth and trade will be based elsewhere.

On specific matters of substance, it might be useful to find some likely issues of longer term rather than immediate importance. One example might be international tax harmonization, which has so far been ignored in the recent international spate of tax reforms and for which urgency grows as capital and other factors become more global in scope.[10]

A second example might be the exchange of information and knowledge. This relates both to learning more about the social, political, and economic structures of other societies and to developing and sharing more precise views about how policies in one country affect its neighbours.

A third example is provided by the environment, which faces increasing risks as economic growth spreads from the rich one quarter to the poor three quarters of the world's population. For example, the World Commission on Environment and Development [1987, p. 14] estimates that to bring developing countries' energy use up to those in the industrial countries by 2025 would increase present global energy use by a factor of 5, with unacceptable consequences for the environment. Cooperation is necessary in both analysis and action, as the causes and extent of environmental damage are hard to forecast and difficult to control, while activities in one country can change the environment in neighbouring countries and in the world as a whole.

These three examples are by no means separate, as an enlightened understanding of the problems, history, and culture of other nations is a first step towards caring about the international effects of national policies and towards the negotiation of internationally harmonious policies. More specifically, as Summers [1988, pp. 114-15] and others have suggested, some of the more promising forms of cooperation in preserving the environment rely on the harmonization of taxes, as in taxes for the control of atmospheric pollutants, or on their internationalization, as in the case of the taxation and regulation of the exploitation of minerals in the deep seabed.

Finally, there are grounds for thinking that structural policies, including environmental policies, are and ought to be an increasingly important part of international policy discussions, for three reasons:

1 To avoid beggar-my-neighbour solutions.

2 To provide mutual encouragement for domestic policies that are good for the national and world economies, but hard to swallow.

3 Because new structural rigidities continue to be introduced as part of a defensive reaction to increasing globalization. Thus negotiations about agreed limits to such policies are increasingly intertwined with more general discussions about international economic relations.

Structural policies and a medium-term focus have by now become standard elements of communiques from OECD ministerial meetings and G-7 countries summits. This should not be regarded as a cover-up for lack of progress on more immediate issues, but should be recognized as a desirable and inevitable change of national and international policy agendas. It is a desirable change because there is a real need for, and payoff from, developing and improving international rules of the game. It is inevitable because globalization encourages structural rigidities as political answers to insulate the domestic economy from the winds of change, and requires structural improvements if the national and global economies are to be kept sufficiently adaptable and open to respond to and benefit from these global trends.

Is there a special responsibility or role for Canada, and for other countries in a similar middle-power position, in designing appropriate international policy responses to the challenges posed by increasing globalization? Bernard Wood [1988] defines the middle powers to be a group of just over 30 countries, with levels of GNP below those of the six largest economies (the United States, the Soviet Union, Japan, West Germany, France, and the United Kingdom), descending in size of GNP to include, at the lower boundary, Hungary, Pakistan, Algeria, Iran, and (arguably) the Association of Southeast Asian Nations (ASEAN). The group includes six eastern European countries, four Scandinavian countries, four Latin American countries, and is led, in terms of 1979 GNP size, by Italy, China, and Canada. Studies summarized by Wood show that on average these middle powers, with the exception of the six Soviet bloc countries, have tended to be moderate in their U.N. voting patterns,[11] to "share a disproportionately high . . . commitment to multilateral cooperation as a good in itself" [Wood, 1988, p. 29], and more willing to contribute financial and technical resources to the development of international structures and institutions.

In light of this history and the sometimes ambivalent or negative positions taken by the superpowers in issues of multilateral collaboration and control, it should be expected that initiatives will have to come from the middle-power countries, and be based on their force of logic and potential usefulness rather than on the economic power or influence of the countries involved. This, in turn, suggests the need for a high level of international collaboration, by expert groups and non-governmental organizations, as well as by officials of national and international agencies, at the technical level even before specific proposals are brought forward in the form of draft treaties or conventions.

Implications for National Policies

Can any of these rather vague morals be knitted together to provide an encompassing vision to support sensible internal policy strategies for Canada? This seems to be both possible and necessary if governments are to find the means to be effective and responsive under the increasing demands for support and defences against global change.

Outline of a Policy Strategy

Several elements of such a strategy might be:

1 Widespread recognition that an inward-looking strategy is doomed to failure in the long run, and that its expensive legacy of debt and disappointment would make subsequent revitalization all the more difficult.

2 By creating and emphasizing new, albeit uncertain, opportunities, an outward-looking or open strategy provides the necessary hope and challenge to strengthen the resolve to resist the demands for sustained industry-specific fiscal and legal protection for producers faced with lower cost competition from abroad.

3 The fiscal savings from winding down support for unprofitable industries can be channelled in two directions: to provide a tax system that makes Canada a good country in which to operate, and a system of social safety nets that operates efficiently to help individuals develop and put to use the skills and knowledge they need to succeed in fast-changing circumstances.

Perhaps "safety net" is an unfortunate term, with the implication that people are stopped from hitting the ground, but are thereafter entangled in a net not easy to escape – the so-called "welfare trap." The policies needed, with their emphasis on preparing and maintaining ability to spring back better prepared, are better thought of as trampolines than as safety nets; jump in and bounce back out revitalized.

Lars Osberg [1988*e*] argues that a system of social trampolines, in my terminology, or the implicit social contract, in his terminology, is likely to be more effective if it fosters a sense of community. If individuals and social groups have a highly developed sense of community and trust the ability of the social safety nets to support their adaptation to changes, then they will be less likely to perceive change as threatening, and less likely to block change. Hence Osberg thinks, as I do, that the national economy's response to globalization is more likely to be positive, with greater average benefits for all if the safety nets, whether provided by the governments, local communities, firms, or families, are supportive enough and are accompanied by sufficient education and retraining opportunities to maintain the sense of community even in the presence of rapid change and adjustment.

What does it take to build and maintain this sense of community? I shall argue later that a key element is that each of the main social groups, and most individuals, should have realistic expectations for themselves and for their partners to eliminate so far as possible the misunderstandings and mistrust that can otherwise surround the distribution of the benefits and burdens of adapting to globalization. Such realism would reduce the frequency and political intensity of the demands made on governments to raise taxes or debts in order to subsidize industries or activities threatened by change. This, in turn, would decrease the fiscal pressures on the main social safety nets, and hence increase the confidence that individuals can feel in the continued availability and integrity of such programs.

Osberg is more specific and argues that the chances of achieving a greater sense of community and of maintaining an effective social welfare system would be greater, over the longer term, if the Bank of Canada were to adopt a more expansive monetary policy, treating the consequently greater inflation as an acceptable part of the price of the socially most efficient way of building and maintaining the spirit of community. If it were possible, over the longer term, to use more expansionary monetary and fiscal policies to increase the degree of social consensus and hence to achieve higher average levels of income and employment, then it would become important, as Osberg argues, to include stabilization policies in the list of policy initiatives to be considered even when, as in the current conference, the focus is on the outlook for the next 25 years. What is the available evidence on this issue?

The Role of Stabilization Policies

The theoretical and empirical literature in macroeconomics is not uniform, but increasingly involves the assumption that there is no long-run trade-off between inflation and unemployment that can be exploited for policy purposes. However, in most of the empirical studies modelling the trade-off between inflation and unemployment in a macroeconomic context, the lack of an exploitable trade-off is built in as part of the underlying model. The acceptability of the assumption is thus frequently not tested. Where tested, it is normally not rejected, but the power of the tests is not high, since it is difficult to distinguish a case where monetary policy has extended, but eventually zero, effects on real output from a case where the effects are sustained over the longer term. Rather than review that extensive but inconclusive literature, it might be more interesting to look for more direct evidence of the extent to which different countries, by adopting more or less expansionary monetary policies, have, over the long run, achieved different rates of growth. Comparing the experiences of countries that may differ in many other respects is risky, but it has the advantage that we can look directly at evidence spanning a 25-year horizon and still have a substantial sample size.

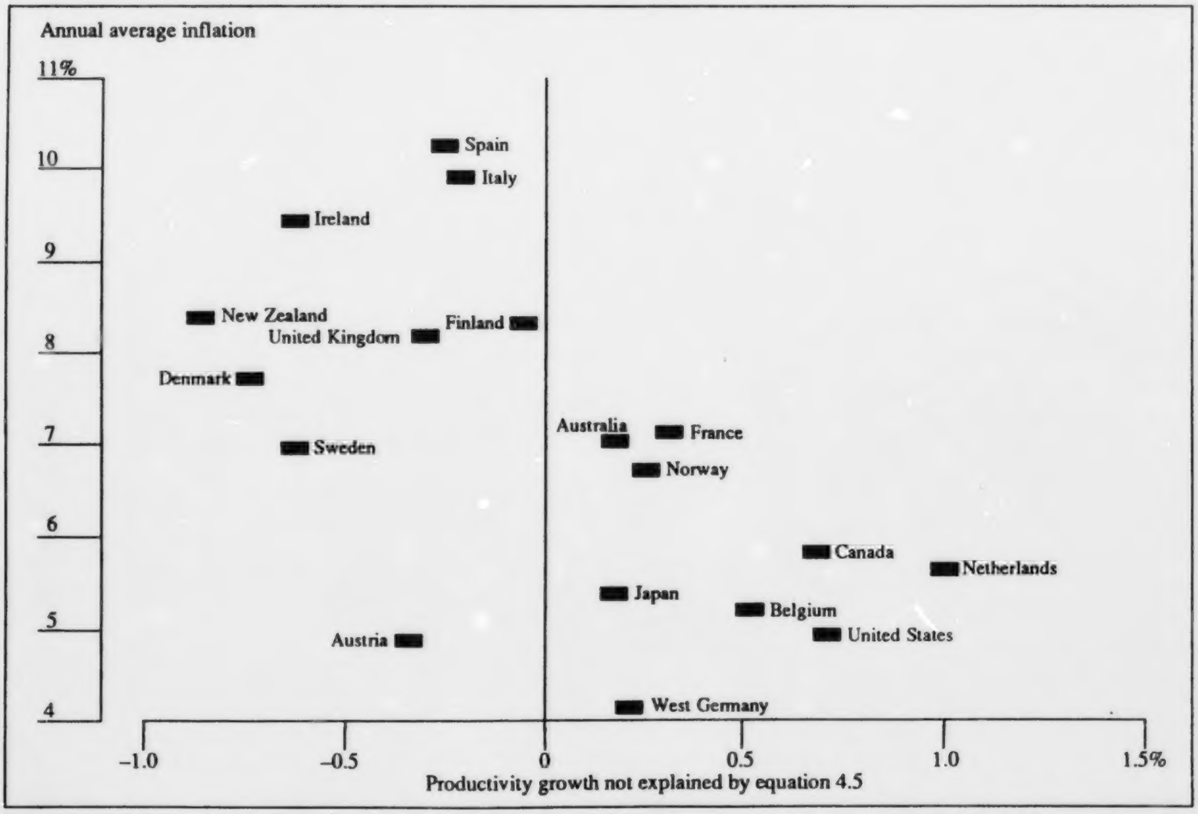
The evidence to be examined is an extension of that presented earlier comparing the average rates of growth of productivity and real income per capita in 18 industrial countries. To assess the likely extent to which there has been, on average, a trade-off that has been used to a different extent in various countries, Chart 4-5 shows plots of average inflation rates against international differences in productivity growth rates, and Chart 4-6 in growth rates of real income per capita, not explainable by convergence and changes in openness.[12]

If it is possible to get higher average rates of output or productivity growth by using more expansionary monetary and fiscal policies, and if countries have differed in their preferences for real output and price stability, then we would expect to find a positive relationship between average inflation and average output growth. Charts 4-5 and 4-6 and the matching equations show that this has apparently not been the case, as there is a statistically significant negative relationship between the otherwise unexplained differences in growth rates and average inflation rates. Hence, countries that have experienced higher rates of inflation have tended to have lower rather than higher growth rates of income and productivity.

In principle, if there is an exploitable trade-off and it is used to different degrees in different countries, then there

Chart 4-5

Inflation and Growth in the Labour Productivity Index, 1960-85



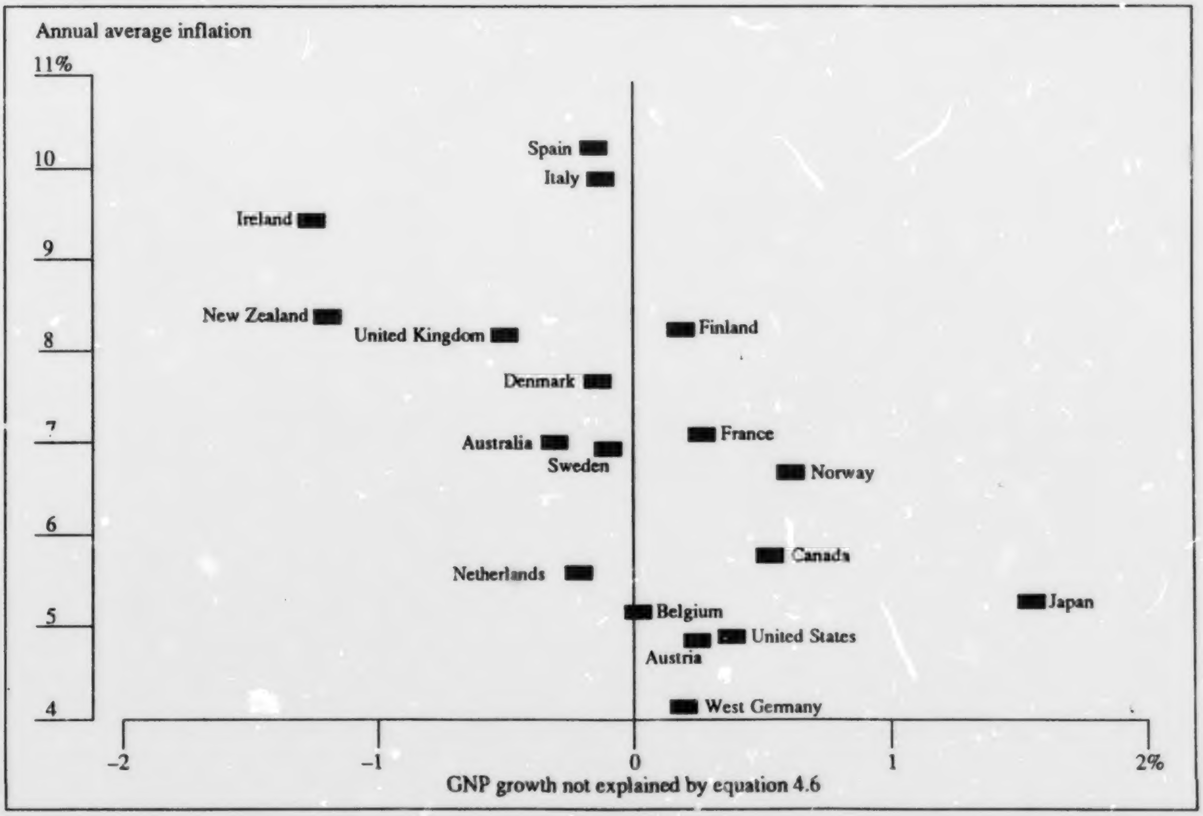
should be a positive relationship between GNP growth and inflation, but not necessarily between productivity growth and inflation, since the extra output would, in general, be expected to come more from higher employment and a higher capital stock than from higher average rates of utilization or faster technical progress. The results show that the negative effect of inflation is significant for both GNP and productivity and of approximately the same size. On average, after adjusting for convergence and changes in openness, a country with average inflation rates 1 per cent higher than those of its neighbours had average annual growth rates of both real GNP and productivity that were about 0.2 per cent lower.[13]

The negative relationship between excess GNP growth and inflation comes to a large extent from three countries: Ireland and New Zealand with high inflation and low GNP growth, and Japan with low inflation and high growth. In terms of productivity growth, as shown in Chart 4-5, the negative relation is less due to a few countries and more generally applicable. However, it can be seen that there is a group of countries that followed the "hard-currency" option, either by following tight money policies themselves, or by linking their currencies to others that did follow tight monetary policies, that also managed to achieve productivity growth rates higher than would have been predicted on the basis of convergence and changes in openness. At the other side of the scatter, there are countries that had higher-than-average inflation and lower-than-expected rates of productivity increase, such as Spain, Italy, the United Kingdom, New Zealand, and Ireland.

Is it appropriate to conclude, from the evidence reported above, that countries following expansionary policies that lead to higher-than-average inflation rates are thereby likely to achieve less-than-average growth rates of income and productivity? That would probably be making too much of what must be treated as a very preliminary finding. It is possible, for example, that some countries had structural or political rigidities that were responsible both for higher-than-average rates of inflation and lower-than-average rates of growth. At the very least, however, the findings should

Chart 4-6

Inflation and Real GNP Growth, 1960-85



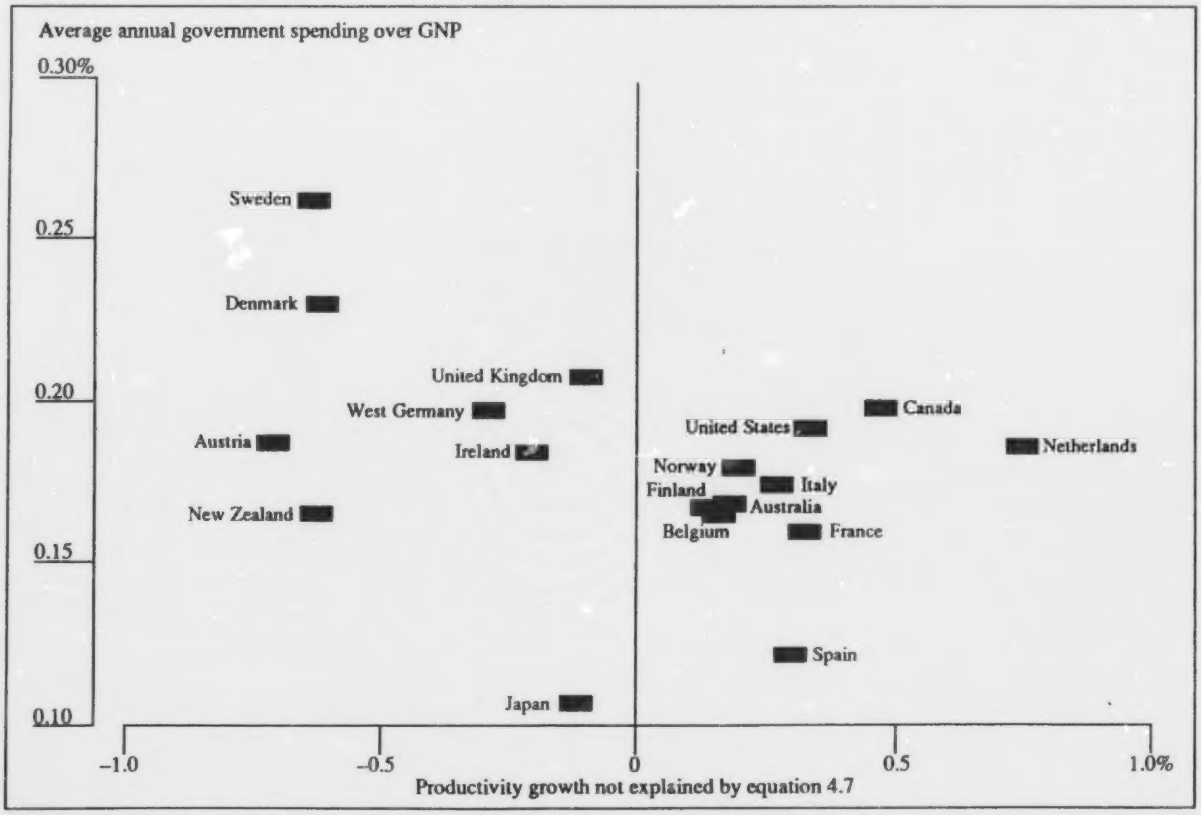
caution against too-ready acceptance of the likelihood that there is much potential, over the longer term, to trade inflation against growth as a means of solving the distributional issues posed by globalization.

Even if demand-increasing policies could not help, on average, to increase average growth rates, it is possible that higher average levels of government provision of public goods might nonetheless help to increase adaptability to change. If, for example, most countries were underspending on public consumption, then the growth-rate residuals not accounted for by convergence and other factors would be explained in part by differences in public consumption ratios, with higher public spending being associated with higher rates of growth of income and productivity. On the other hand, if, on average, countries were overspending on public consumption, or if public spending were on average less efficient in increasing adaptability, then we might expect to find a negative relation between public consumption and growth rates. Charts 4-7 and 4-8, and the associated equations in Appendix A, show that there is a weak negative relation between public consumption ratios and the growth rates of both GNP and productivity.[14] In general, therefore, countries with higher ratios of public consumption to GNP tend to have had slightly lower growth rates of productivity and income. Even if this effect were strong enough to be significant, it would not necessarily mean that the higher consumption was not desirable, since it might have been undertaken with redistributional goals in mind, even in the expectation that it would lead to some crowding out of other spending that would have been more conducive to higher growth rates.

Putting together the tentative evidence on both inflation and government spending, the results would tend to suggest that higher levels of government spending, whether financed by debt, taxes, or monetary expansion, are not likely, on average, to have increased growth rates of income and productivity over a 25-year horizon. Thus attempts to build and maintain the social consensus required to encour-

Chart 4-7

Government Spending and Growth in the Labour Productivity Index, 1960-85



age adaptability are likely to require institutional changes and to pose harder political choices than if there were easy gains to be made by more expansionary policies.

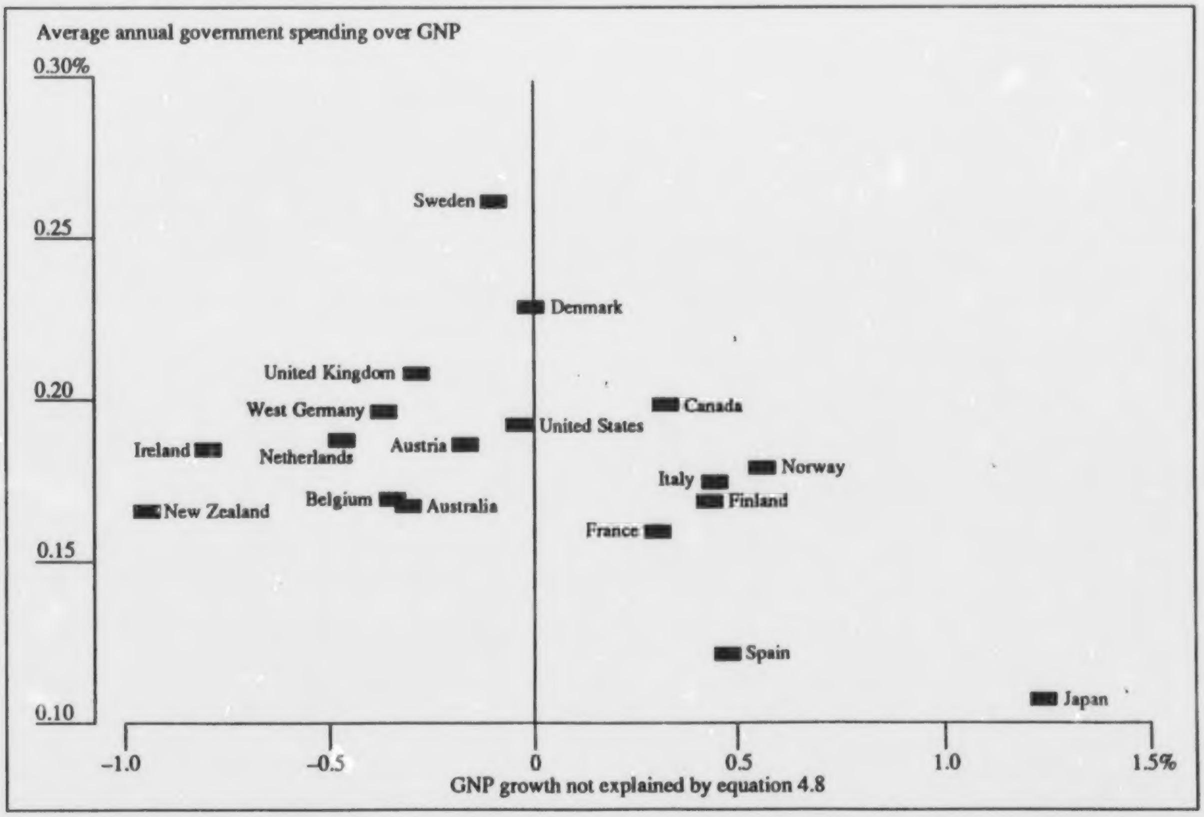
Discussions with Lars Osberg have convinced me that the above evidence, while informative, is possibly misleading and inadequate as a test of his proposal to use expansionary macroeconomic policies in order to build social consensus. If some countries had been successful in this use of macroeconomic policies to increase social consensus and structural flexibility, then these countries would be among those with higher rates of growth of output and productivity, and/or with lower rates of inflation. I was able to think of no satisfactory way of using the simple cross-sectional evidence to cast light on the likelihood of this being the case.

It is possible, however, to bring in some additional evidence, collected by Crouch [1985] and used in earlier cross-sectional studies by Bruno and Sachs [1985], that attempts to measure some variables thought to influence the degree of social consensus. Crouch's "corporatism" index is a combination of several measures reflecting the presence of social institutions designed to help mediate between the competing interests of management and labour, and hence to reduce conflicts that might lead to less flexibility in response to changing opportunities. However, for the time period and country sample under study in this paper, the Crouch index is uncorrelated with international differences in the average growth rates either of per-capita growth of real income or productivity.[15]

Of course, the Crouch index may not measure the most important elements of flexibility-building consensus. Even if it did and was found to be important in explaining international differences in growth and productivity, we would still not know whether macroeconomic policies had played an important role in achieving or maintaining the social fabric. If macroeconomic policies can be appropriately used to offset macroeconomic shocks, then the economy's adaptive potential can be conserved for use in adapting to longer-lasting changes in the world economy. Beyond this generality, which is not much use in practice unless the

Chart 4-8

Government Spending and Real GNP Growth, 1960-85



temporary and longer-lasting changes can be disentangled, I think it is appropriate, when a 25-year horizon is being considered, to put the emphasis on institutional and other longer-term structural changes.

The Need for Institutional Change

Any successful policy framework must lead to a situation where individuals, families, firms, and governments, all have the scope to do what is necessary and feasible to respond constructively to change. Given the complexity and diversity of global markets and opportunities, national economies will have to have the same characteristics if they are to adapt successfully. What is this likely to require? First, as we have already seen, there must be a sufficiently broad understanding of the short-sightedness of defensive responses, and the unlikelihood of successful centralized policy solutions, to remove the pressures, and hence the temptations, for governments to promise and then attempt to deliver what is beyond their powers. Then it is necessary to ensure that they have the means and the mandate to do what is required on their part to provide and repair the economic, social, and environmental framework in which other agents can recognize and respond to the challenges at hand. Given more realistic expectations and appropriate tools, governments can then be made more accountable for delivering results.

There is thus a triple challenge: to match expectations to what can realistically be accomplished; to provide each government or other agent with the tools and powers needed to accomplish what can rightly be expected of them; and then to make governments and other agents more fully accountable for their performance. These steps are linked because, until voters stop asking their governments for the moon, governments will keep trying to provide it and will encounter cynicism and rejection when they deliver debts or high taxes instead.

These difficulties are present in every country, but are perhaps especially likely to be evident in countries such as Canada, where there is a division of powers and responsibilities between federal and provincial governments. Each level of government will be subject to demands from voters and interest groups to deal with pressing problems, and both levels are likely to be drawn into various defensive policy reactions, whether to offset subsidies provided elsewhere, or to provide a temporary shelter that may turn out to be more durable and more expensive than originally intended. The overlapping jurisdictions do not stand in the way of these sorts of responses by both levels of government, but often do limit the extent to which more meaningful reforms can be designed and instituted. Each level of government wishes to obtain the political credit for the support provided, but to pass along to another level as much of the costs, whether in terms of higher debts or higher perceived tax rates.

Clearer division of responsibilities, and more separation of tax bases and rates, might help to reduce the scope for distributional conflicts between levels of government. Within the federal sphere, the potentially wasteful scope of politically oriented regional spending and subsidies could be reduced if there were a clearer demarcation of the goals of each programme. For example, if the equalization programme were understood to be the primary vehicle for establishing an acceptable degree of fiscal equality among the regional governments, and if the social safety-net policies were appropriately defined in terms of the needs and characteristics of the target individuals and families, then it should be possible to stop regional criteria from permeating all other spending decisions. Lacking a rationale based on the attempt to establish regional equality, either in terms of results or in terms of spending, or a vain attempt to do both at once, many of the more wasteful defensive subsidies would be easier to avoid.

A clearer alignment of responsibilities and tools, as between the levels of government, would also be aided by a simplification of the revenue-sharing agreements, with separate rates being levied by each level of government, and with a gradual elimination of shared-cost programs. The simplifications made possible for taxpayers by the use of a common tax base, and by tax collection agreements, are naturally to be encouraged. These tax simplification and harmonization goals naturally limit the feasible extent of interprovincial differences in tax rates and tax structure. One of the objectives of the equalization payments system, of course, is to reduce the need for large interprovincial differences in tax rates. A subsidiary objective of any attempt to rationalize and simplify federal-provincial financial relations would be to achieve a common understanding of the need for provincial and national governments alike to avoid policies designed to attract or maintain economic activities that would otherwise be uneconomic.

One advantage of globalization, and of the obvious pressures and constraints it provides on domestic actions, is that citizens of each country, and of each region within the country, are probably more aware of the longer-run costs of attempts to insulate the domestic economy from global changes. There is still, however, even in economies as open as that of Canada, a tendency for governments to claim credit for favourable trends outside their control, and to hence invite rejection when the bad times come.

Conclusions

The main conclusion of this paper is that the globe-shrinking trends that have been so important over the past 20 years are likely to continue, at no slower pace, into the next century. These changes provide both opportunities and risks for families, firms, and governments, all of whom can gain if they can successfully adapt to emerging trends and lose if they fail to foresee, or choose not to respond positively to, fundamental changes.

The paper also considers the implications of these changes for economic policy at the international and national levels, with emphasis on the need for governments to provide the framework of rules and institutions within which progress can be more assured, its benefits and costs equitably distributed, and the physical, social, and political environment maintained in robust health.

In the international area, most of the suggestions related to cooperation in the establishment and updating of a forward-looking framework to permit the advantages of globalization to be obtained with a minimum of political frictions and beggar-my-neighbour attempts to pass the costs of adjustment on to those living elsewhere.

Given a stable international framework, the key challenges for national and regional governments lie in defining their roles more clearly and more consistently with their ability to deliver. To adapt successfully in its own sphere of operations, and to encourage the adaptation of its citizens, each government needs to have a clear mandate in the sense that there must be a close match between voter expectations and the ability of governments to deliver the results. This requires an appropriate correspondence between revenue sources and expenditure responsibilities and a clear accounting of, and accountability for, each government's performance.

Appendix A

Regressions Underlying Charts in Text

Equation 4.1:		Equation 4.2:	
LNELF60	−2.8880	*LRGNP*	−1.9645
	(7.01)		(3.98)
CONSTANT	92.705	*CONSTANT*	5.6602
	(7.19)		(7.82)
RB2 =	0.7388	*RB2* =	0.4664
SEE =	0.65770	*SEE* =	0.67025
Equation 4.3:		Equation 4.4:	
DOPEN	0.35000	*DOPEN*	−0.12036
	(2.55)		(0.74)
CONSTANT	−0.85985	*CONSTANT*	−0.29570
	(2.38)		(0.69)
RB2 =	0.2447	*RB2* =	0.0275
SEE =	0.55452	*SEE* =	0.65912
Equation 4.5:		Equation 4.6:	
AINFL	−0.17626	*AINFL*	−0.19426
	(2.98)		(2.66)
CONSTANT	1.2345	*CONSTANT*	1.3606
	(2.89)		(2.58)
RB2 =	0.3168	*RB2* =	0.2636
SEE =	0.44467	*SEE* =	0.54874
Equation 4.7:		Equation 4.8:	
AGG	−0.63493	*AGG*	−1.30120
	(1.24)		(2.27)
CONSTANT	−1.0932	*CONSTANT*	−2.2403
	(1.23)		(2.25)
RB2 =	0.0313	*RB2* =	0.1962
SEE =	0.42459	*SEE* =	0.47728
Mixed regressions:		Mixed regressions:	
LNELF60	−2.3944	*LRGNP*	−2.4008
	(7.05)		(3.69)
DOPEN	0.44432	*DOPEN*	−0.18935
	(3.56)		(1.17)
AINFL	−0.16723	*AINFL*	−0.23173
	(2.73)		(3.04)
AGG	−0.88741	*AGG*	−0.99054
	(1.49)		(1.16)
CONSTANT	75.827	*CONSTANT*	6.668
	(6.76)		(2.65)
RB2 =	0.8855	*RB2* =	0.6802
SEE =	0.43552	*SEE* =	0.51886

NOTE The above equations use a cross-section sample of 18 countries and correspond to the charts, except for the mixed regressions (hence Chart 4-1 corresponds to equation 4.1). Equation 4.1: the dependent variable is the constant growth rate of the labour productivity index. This is obtained for each country by regressing measured output attributable to labour on a time trend. *LNELF60* is the logarithm of the initial 1960 value of output attributable to labour. See Appendix B for the derivation of these variables. Equation 4.2: the dependent variable is the annual average change in real GNP per capita (in international $). *LRGNP* is the logarithm of the initial 1960 value of real GNP per capita. A test was done against the linear model using *RGNP* and the likelihood ratio test (*LRT*) did not reject the log model (*LRT* = 1.549 vs. chi-square 3.84 [1 *df*]). The dependent variables for equations 4.3 and 4.4 are obtained from the corresponding residuals in equations 4.1 and 4.2. The same sequential procedure is used for equations 4.5 to 4.8, which use residuals from equations 4.3 to 4.6, respectively. Equations 4.3 and 4.4: *DOPEN* is the annual average change in openness 1960-85, proxied by the sum of real exports plus real imports divided by real GNP. Equations 4.5 and 4.6: *AINFL* is the average annual inflation rate 1960-85. Equations 4.7 and 4.8: *AGG* is the logarithm of the average ratio of government spending to GNP. Mixed regressions: the separate effects of the above independent variables are shown in a single regression, where the dependent variable is identical to that in equations 4.1 and 4.2.

Appendix B

This appendix provides information on the data and methods used in our derivation of measured labour productivity.

Variable Description

a = Real absorption, billion 1980 currency

g = Real government current and capital expenditures on goods and services, billion 1980 currency

i = Real fixed investment, billion 1980 currency

k = Real fixed capital stock, billion 1980 currency

m = Real imports of goods and services (excluding investment income), billion 1980 currency

N = Total employment (excluding armed forces), millions of persons

N_p = Average population in each period, millions of persons

p_a = Implicit price of absorption, 1980 = 1.0

p_{gdp} = GDP deflator, defined as ratio of nominal GDP to real GDP

p_k = Price of capital services

p_q = Implicit price for gross domestic output (including imported energy), 1980 = 1.0

q = Real gross output (at factor cost), billion 1980 currency

q_s = Real synthetic supply, billion 1980 currency

t = Time; 1960 = 1, 1961 = 2, and so on

T_i = Total indirect taxes less subsidies, billion currency

W = Wage rate, thousands of dollars per year per employed person

x = Real exports of goods and services, billion 1980 currency

y = Real gross national product, billion 1980 currency

d_2 = Scrapping rate for capital stock (including housing)

P = Labour productivity index for Harrod-neutral technical progress in CES function for q

q_r = Estimated parameter – Real supply price of capital

s = Estimated parameter – Elasticity of substitution between labour and capital in the CES function

l = Estimated parameter – Distribution parameter in the CES function

m = Estimated parameter – Distribution parameter in the CES function

Data for this study were taken from: Economic Report to the President 1986; IMF, International Financial Statistics; OECD, *Standardized National Accounts* (SNA), Volumes I and II; OECD 1984, 1986, and 1987, INTERLINK supply block tapes for G-7 countries; OECD 1987 supply block tape for the smaller OECD countries; and Statistics Canada. The sample period is 1960-85.

Most of the supply block data for this study can be derived from the OECD *National Accounts* (denoted by SNA) as indicated below. Square brackets indicate source and data mnemonic. Note that $ is used to denote domestic currency.

YGDP = GDP in current $ billion [*SNA, GDP*]

PGDP = GDP deflator (1980 = 1.00) [*SNA, GDPE/GDPEV*]

I = Private business and government investment in 1980 $ billion [*SNA, GF*]

A = Absorption in 1980 $ billion [*SNA, PC+GF+GC*]

G = Government expenditures in 1980 $ billion [*SNA, GC*]

PA = Absorption deflator (1980 = 1.00) [*SNA, A/(PCV+GFV+GCV)*]

TI = Indirect taxes less subsidies in current $ billion [*SNA, ITX-SUB*]

N = Total employment, millions of persons [*OECD86, OECD87, ET*]

W = Average annual wage ('000s of $ per employed person per year) [*OECD86, OECD87 (WSSE*EE + CGW)/(EG+EE)*]

X = Exports of goods and services in 1980 $ billion [*SNA, EXPV*]

XIY = Total investment income receipts from abroad in current $ billion [*SNA, FIFW*]

MIY = Total investment income payments to foreigners in current $ billion [*SNA, FITW*]

M = Imports of goods and services in 1980 $ billion [*SNA, IMPV*]

NPOPT = Total population (millions of persons) [*IFS* and *SNA*]

d_2 = Scrapping rate [*OECD84, RSCRB*]

KS = Kickoff value for capital stock in 1980 $ billion [*VARIOUS*]

Q = Real gross output *(YGDP-TI)/PGDP*

Y = Real gross national product *YGDP/PGDP+XIY/PGDP-MIY/PGDP*

The wage and employment data for both the G-7 countries and smalls were derived from INTERLINK supply block data supplied by the OECD.

The capital stocks were generated using a base kickoff value. For each year, last year's stock was added to new investment minus the scrapping rate multiplied by last year's stock $[K(t) = (1 - d_2)K(t-1) + I]$. The *KS* data were taken from the Economic Report to the President for the United States, Statistics Canada for Canada, and the OECD 1984 tape for the remaining G-7 countries. The value used for each country is for 1959. For the smaller OECD countries, the kickoff values are the value of the business stock (*KBV*) in 1959 from the OECD 1987 tape. These values were scaled up by a factor of 1.3. An average scrapping rate was used for the small countries, as they are not available on an individual country basis for the total capital stock.

The purchasing power parities were calculated by taking the 1985 values published and rebasing them to 1980 as the following example for West Germany shows:

$$PPP80 = PPP85/(1 + PGDP_{Germany}/1 + PGDP_{U.S.})$$

The data are available from "Purchasing Power Parities and Real Expenditures" [Paris: OECD, 1987].

Derivation of Measured Labour Productivity

The following provides a description of the underlying assumptions and derivation of measured labour productivity used in the charts and regressions. For each country, we specify a two-factor (capital and labour) CES production function which determines normal output. Cyclical variations from normal output are explained by determinants of the factor utilization decision discussed in Helliwell and Chung [1988] and are not examined in this paper. To permit international comparisons of productivity levels, the 1980 constant price output and capital stock from the different countries are converted into common units, referred to as "international dollars," using the most recently available estimates for purchasing-power-parity exchange rates [OECD, 1988]. Also in order to simplify our comparisons and so as not to strain the quality of our data, which require a number of arbitrary approximations especially in the estimation of real capital stocks, we assume the same substitution and scale parameters in the CES production function for each country, thus permitting the definition and comparison of measured labour productivity of each of the 18 countries.

The CES two-factor production function which defines normal output q_s is:

$$q_s = [l(PN)^{(s-1)/s} + mk^{(s-1)/s}]^{s/(s-1)} \qquad \text{(B.1)}$$

The following will first discuss the procedure used to derive expressions for the country-specific m, l and P. Common parameters were used in our final estimates, and these were averages of the country-specific values. The final values of the country-specific parameters depend on the value of s, the elasticity of substitution between labour and capital, which is determined iteratively. The iteration method used to calculate s will be examined last.

Equation B.1 can be rewritten by setting $q = q_s$ and by isolating the following expression for P:

$$P = [((q^{(s-1)/s} - mk^{(s-1)/s})/lN^{(s-1)/s}]^{(s-1)/s} \qquad \text{(B.2)}$$

Equation B.2 is used to obtain an expression for the parameter m. First the optimum factor ratio is derived. The partial derivatives of equation B.1 with respect to labour and capital are first calculated and set equal to the prices W and p_k. Assuming the factor ratio is optimal provides the following ratio:

$$PN^*/k^* = (p_k P/W)^s (l/m)^s \qquad \text{(B.3)}$$

where the price of capital services is:

$$p_k = (< d_2 > + 0.01\, q_r)p_a$$

and where

$$q_r = 100 < 1 - (WN + < d_2 > \bar{k}p_a)/(qp_q) > / < (\bar{k}p_a)/(qp_q) >$$

so that the ratio of factor costs to revenues is unity, on average (as $< x >$ denotes the sample average of x).

Equation B.2 is substituted into equation B.3. The parameter l drops out and can be determined empirically when P is normalized, as shown below. The parameter m is isolated in the substituted equation and sample averages are taken to provide the following expression:

$$m = < (p_k/W)(q/N)^{(s-1)/s} > / [< (N/k)^{1/s} >$$
$$+ < (p_k/W)(k/N)^{(s-1)/s} >] \qquad \text{(B.4)}$$

Note that we are normalizing so that the sample average of the ratio of the factors raised to the $1/s$ power is equal to the average for optimum proportions.

The value of P, the labour productivity index for Harrod-neutral technical progress, is derived by the following procedure. Output attributable to labour is defined by rewriting equation B.2:

$$lP^{(s-1)/s} = (q^{(s-1)/s} - mk^{(s-1)/s})/N^{(s-1)/s} \qquad \text{(B.5)}$$

In the constant model, the technical progress index is modelled to grow at a constant rate. It is estimated by ordinary least squares by regressing the log of the value provided by equation B.5 (referred to as *LNELF*) on an annual time index. Given the final value of *s*, the fitted values of *LNELF* can be estimated for each year. Using the latter, the value of *l* is calculated by setting $P = 1.0$ in 1980. Given that the value of *l* is constant throughout the sample period, the labour efficiency index is defined simply as the exponent of *LNELF* minus 1980 *LNELF*, which ensures it has a value of 1 in 1980.

Finally, an estimate of *s* is needed to derive final values of the above parameters. The iterative procedure uses the expression for the optimum factor ratio, equation B.3. The log of this equation provides the following form that can be estimated:

$$\ln (PN^*/k)^* = s\ln(l/m) + s\ln(p_k/W) \qquad \text{(B.6)}$$

The coefficient of the inverse price ratio is *s*. An arbitrary value of *s* is used to define *l*, *m*, and *P*. Equation B.6 is then estimated by ordinary least squares and the estimated coefficient provides a new value of *s*, which is used to redefine the other parameters in the next round. The process is repeated until the value of *s* in equation B.6 converges. This value is used to obtain the final values of *l*, *m*, and *P*, and normal output, q_s. For our final estimates, a variant of equation B.6 was used in which the lagged capital labour ratio was included along with cyclical demand and profitability variables (outlined in Helliwell and Chung) as right-hand side variables.The latter were included since the factor share ratio has, in addition to its responsiveness to relative prices, a cyclical variance caused by the fact that labour adjusts more quickly than the capital stock to changes in desired output. The distributed lag response on the relative price term (which tends to produce a higher estimated equilibrium elasticity of substitution) also provides more reasonable elasticities across countries.

Given the above procedure to derive country-specific parameters *s* and *m*, we use an average of these values (with values of 0.99 and 0.25742) as common production function parameters. For each country, we derive the constant growth rate of the labour productivity index. It is the coefficient from the regression of the log of measured labour productivity (*LNELF*) on an annual time index, where *LNELF* is defined using the common production parame-

List of Data Used in Regressions

	ARGNP	*DELEFF*	*EMPL*	*RGNP*	*LNELF60*	*DOPEN*	*AINFL*	*AGG*
United States	2.029448	0.739660	0.8278684	7.808723	32.05746	2.189480	4.936842	−1.642555
Japan	5.600505	4.743200	0.0785827	2.239425	30.54503	2.671542	5.375102	−2.230619
Canada	2.799446	1.925500	1.085398	5.667498	31.67189	2.470519	5.823631	−1.609940
France	3.021126	3.706800	−0.2788860	4.120642	31.05863	3.558536	7.140152	−1.826803
West Germany	2.721185	2.976100	−0.4947752	4.773788	31.20077	2.921029	4.135312	−1.621964
Italy	3.041457	3.503700	−0.4875455	3.294353	30.96649	3.772576	9.904299	−1.736025
United Kingdom	2.000478	1.727800	−0.2805482	5.219673	31.29075	1.599610	8.218512	−1.564797
Australia	2.335006	1.210700	−0.2719376	5.108870	31.56117	0.959025	7.044760	−1.777507
Austria	3.282413	2.927100	−0.3675090	3.638323	31.06131	3.206064	4.896458	−1.675900
Belgium	3.014214	2.611500	−0.0444202	3.858322	31.37619	2.486609	5.203771	−1.767861
Denmark	2.504715	1.526800	0.2391156	4.837917	31.23334	1.774300	7.700306	−1.469502
Finland	3.383252	2.994000	0.0281562	3.727529	30.92100	1.437018	8.276412	−1.771179
Ireland	2.442830	3.703200	−0.8220796	2.502874	30.75108	3.711927	9.426898	−1.585801
Netherlands	2.352230	2.489400	−0.6238836	4.837308	31.59607	2.549169	5.643788	−1.669373
New Zealand	1.193540	−0.4857700	0.3653990	5.577992	31.85297	1.490115	8.388774	−1.796971
Norway	3.529952	2.333100	0.7508066	4.375871	31.22606	1.193238	6.724258	−1.711981
Spain	3.594229	3.740900	−1.198292	2.352714	30.94309	4.346324	10.25463	−2.094223
Sweden	2.391124	1.262000	0.2696586	5.216906	31.37610	1.884200	6.973950	−1.337777

NOTE *ARGNP* = the annual average change in real GNP per capita (in international $).
DELEFF = the constant growth rate of the labour productivity index.
EMPL = the annual average change in the employment to population ratio.
RGNP = the initial 1960 value of real GNP per capita.
LNELF60 = the logarithm of the initial 1960 value of output attributable to labour.
DOPEN = the annual average change in openness, proxied by the sum of real exports and real imports divided by real GNP.
AINFL = the average annual inflation rate.
AGG = the logarithm of the average ratio of government spending to GNP.
All annual averages are for the period 1960-85.

ters. The constant growth rates are the dependent variable for equation 4.1. The independent variable for equation 4.1, initial measured output of labour, is the 1960 value of *LNELF* for the 18 countries.

Commentary by Yoshihiro Tsurumi

Dr. John F. Helliwell's paper, "Globalization and the National Economy," contains essentially three separate papers although the author made an attempt at linking them together. The first segment is a broad-brushed empirical test of the hypothesis that the more open a given national economy is to international competition, the greater is its real GNP growth. The second segment argues that (price) stabilization policies seem necessary for income growth. And the third and concluding segment calls for some undefined cooperation between Canadian federal and provincial governments to benefit from more open rather than protectionist policies. This section also includes the author's plea for the harmonization of taxes among OECD nations.

In the main, I agree with the basic tenets and conclusions of the paper. At the same time, the author could enhance his viewpoints if he restructures his paper along the following framework.

First, the globalization of economic activities (the so-called "borderless economy") is only one result of the irrevocable and sweeping changes in both domestic and international economic activities. For lack of a better term, let me call this change the "softening" of the economic structure at home and worldwide. This is characterized by 10 distinct but mutually reinforcing changes in economic activities: 1) globalization (borderless); 2) turfless competition (conventional industry-to-industry demarcations being increasingly blurred); 3) the increasing importance of services; 4) the rising economic values of information; 5) the high-tech-induced economy; 6) an increasing dominance of the financial and money-game economy; 7) an increasing dominance of speculative and proactive business decisions; 8) the perpetual decline of energy and raw materials input per additional percentage point of GNP (conservation economy); 9) the inseparability of politics and economics; and 10) the worldwide shortage of real capital (savings).

As shown in Helliwell's paper, even during the yesteryear of "hardware economies" in which the more tangible hardwares of heavy industries determined economic growth, export-oriented nations like Japan, West Germany, France, and more recently Asian newly industrialized countries (NICs) such as Korea, Hong Kong, Singapore, and Taiwan, had expanded their national economies by increasingly exposing them to international competition at home. These nations have avoided the "import substitution trap" by forcing their emerging "infant" industries to compete at home first and subsequently abroad. The measured introduction of international competition at home permitted the national economies to wean the protected infants from the governments' supports. In the years to come, the softening of both international and domestic economies is all the more likely to hurt any national economy that tries to shield its manufacturing and service industries from borderless and turfless competition. This is mainly because in the softening economies, ingredients such as information, technology, capital, and human resources, necessary for any industry's growth, are likely to be denied to the protected firms and industries.

Second, the author's plea for price stabilization policies would be strengthened if he explicitly recognized Canada's need for greater savings (sources of real capital investment) as well as for more stable or even dearer Canadian dollars relative to the U.S. dollar. The lower rates of inflation and lower rates of interest vis-à-vis the United States would be beneficial to the Canadian economy. When the economy softens, the cheaper currency hurts, rather than helps, the international competitiveness of the economy. The myth of cheaper currency as an export stimulant was the product of the yesteryear of the "hardware" economy. If Canada needs to lessen its dependence on natural resources for which world demand is evermore relatively declining, it has to build up exports of high-value-added manufactures, technologies, and services. This requires substantive investments in marketing logistics in foreign markets. The cheaper currency makes such investments very expensive. In the Pacific Age, Canadian manufacturing and service industries will have to play both competition and cooperation with other Pacific nations' industries and firms. The cheaper currency will put Canada at a competitive disadvantage vis-à-vis Japan and other Asian countries.

Third, politics dominates economics. Currency exchange rates and even interest rates are determined more by politics and influenced by money-game flows of funds worldwide. Accordingly, politics of obsolete economic nationalism misleads voters into a mistaken belief that their economic and social problems can be easily solved by keeping out foreign competition. I do not have any suggestion about restructuring Canadian politics. The only plea that I would like to make is for extensive education of Canadians about the advent of the Pacific Age and about the peoples, cultures, geographies, economies, and politics of other Pacific nations.

5 The Competitiveness of the Canadian Economy to the Year 2000

Marcel Côté

The structure of the Canadian economy will be strongly affected by the forces of change over the next 20 years. These forces can be divided into two groups. First, the Canadian economy will have to adapt itself to a constantly changing environment, in terms of technologies, products, international competition, exchange rates, institutions, and so on. This quasi-organic process of adaptation will be the main factor shaping the Canadian economy. In addition, governments will use their decision-making power to determine certain priorities and will attempt to steer the economy in the directions they want. Out of the combined effects of these two types of forces will emerge the Canadian economy of the 21st century. That is the subject of this paper.

Undertaking to describe the future is certainly fraught with risk. Nevertheless, there are three basic questions concerning the future evolution of the Canadian economy that could be asked. First, what will the Canadian economy be like in the year 2000, and will it be much different from today? Second, will structural differences between the Canadian economy and the economies of Europe, the United States, and Japan be greater, or will there be a convergence? And last, will Canada be in a better shape economically in relation to other industrialized countries than it is today?

These are the three questions that I hope to answer in this paper, after examining the structure of the Canadian economy and the main forces that will shape it in the remainder of this century. At the outset, however, it is important to challenge the pretence at objectivity that most forecasting studies claim so virtuously. In fact, forecasting exercises are seldom really carried out to predict the future at all, but rather to influence the present. History has shown that the predictive value of long-range forecast studies is very weak, compared to their impact on the present.

A successful prospective study helps to define the agenda of public debate. Today, we smile at the gloomy predictions of George Orwell. But in the 1940s, his vision of the year 1984 made people stop and think. *The Limits of Growth*, the manifesto issued by the Club of Rome a mere 17 years ago, would have us living today in a polluted and suffocating world à la "Blade Runner," saddled with an unbalanced economy and widespread shortages of all kinds. Happily for us, the human race opted for a different course. It may even be that the alarmist tone of the Club of Rome helped steer the good ship Earth in the right direction in the early 1970s. And certainly, this was the Club's first objective.

Overall, then, studies of the future educate us more about the problems of the present and the past than the problems of the future. I am not suggesting that the Economic Council of Canada or participants to this conference harbour secret motives. But it is important to remember that a long-range forecasting study is not necessarily a call for alarm. Serious futurology has a long history, and some studies have been a major influence on the planning of social organizations and systems. *The Year 2000*, published in the early 1960s by Herman Kahn and his colleagues at the Hudson Institute, is a good example. This is one of those works that has aged well; even today, it is more useful for understanding the future than the past. More than any other person, Kahn pointed out the important contributions to economic progress made by technological change and by the accumulation of capital. He also became a champion of economic growth in the Third World. While economic progress in the Third World is still hampered by a multitude of problems, it is nonetheless being made.

My own analyses underlying this paper have not led me to issue a cry of alarm. The structures of the Canadian economy are sound and evolving in the same direction as the economies of the other industrialized nations. Canada, of course, has a regional-disparity problem, and these disparities will not go away. We are also gradually losing our comparative advantage in natural resources as their relative value slowly declines. However, we will be able to make increasingly better use of the flexibility inherent in small economies such as Canada's. Our economy has developed flexible structures so that it can adapt to, among other things, fluctuating exchange rates. This is a major asset for the future.

In order to gauge the extent of change that we might face by the year 2000, the first part of this paper will examine the years 1970-85 – a period that will serve as our benchmark. The changes that took place in the Canadian economy during this turbulent period will provide an indication of how far our conjectures about the future should go.

The second section will discuss the main forces that will be at work over the next 15 years. The third section will examine various aspects of the structure of the Canadian economy and what changes might be expected in the proposed context. This discussion will lead, finally, to a conclusion, where the three questions set out at the beginning will be answered.

Our Benchmark: The Period 1970-85

The extent of forthcoming change must be judged according to a benchmark. In this way we can get an idea of what might realistically be expected to occur in the course of a 15- or 20-year period.

The period 1970-85 was rocked by several major external shocks. It is likely that the shocks of the next 15 to 20 years will not be so brutal and so extensive. Let us briefly review the six major shocks that occurred during this period.

The Collapse of the Bretton Woods Agreement

Changes in the institutional framework governing international currency exchanges around 1970 led to significant changes in exchange rates and the value of the Canadian dollar. The United States accounts for approximately three quarters of our international transactions. Over the period, the Canadian dollar lost more than one quarter of its value against the U.S. dollar. Against the Deutschemark and the Japanese yen, it fell 40 and 281 per cent. Even more important than these declines, however, were the freeing-up of exchange rates and the consequent uncertainty about the future value of our dollar on international markets.

The Arrival of Newly Industrialized Countries and the Enlargement of the Industrialized World

The Japanese economy really came into its own during this period. Japan's GNP (in real terms) doubled between 1970 and 1985. Korea, Taiwan, Singapore, and Hong Kong followed closely in Japan's footsteps. In Europe, Great Britain joined the Common Market, as did Spain, Greece, Portugal, Ireland, and Denmark.

Two Galvanizing Oil Shocks

In 1973-74, the price of oil doubled and, in 1979-80, it tripled. Each time, panic gripped the industrialized world, which reacted with rationing, price controls, strategic reserves, wide-ranging programs to develop alternative sources, conservation programs, and so on. More than any other phenomenon, the "energy crisis" was the major trait of the psychology of the industrialized world during our benchmark period. The fact that oil prices slipped 75 per cent between 1984 and 1988 has not changed that "crisis" perception.

The Triumph of the Computer

Technologically speaking, the 1970-85 period marked the advent of the integrated circuit and its impact on computer development. The cost of computing fell by a factor of 300 between 1970 and 1985 [Peled, 1987]. The advent of personal computers in the early 1980s, some priced under $1,000, also led to profound changes in the information and communications industry. Technological progress was not confined to the computer. For example, despite oil rising in price from $30 to $35, the price of an economy ticket for a Montréal-Paris flight fell 20 per cent in real terms over the period.

Fireworks in Quebec

While Canada did not experience a radical socio-political change, there were certainly some fireworks in Quebec: terrorism, political kidnapping, the army in the streets, a number of major strikes, the election of a separatist government, and a referendum on Quebec independence. The Canadian political scene had probably never been so highly charged as it was between 1970 and 1985.

The Major Recession of 1981-82

The 1981-82 recession was the worst the Canadian economy had known since the 1930s. The combination of two U.S. recessions in close succession, oil price hikes, and inflexible monetary policy in a bid to stop inflation caused a severe downturn in the Canadian economy. As long as double-digit inflation does not reappear, however, the chances of such a recession reoccurring are slim.

Overall, the benchmark period is remarkable for the severity of the exogenous shocks hitting the economy. The only thing missing was a major war – the chances of which are growing ever slimmer. So what did happen to the Canadian economy during this 15-year period? Perhaps most surprising was the good performance and the stability of the Canadian economy during the period, and its ability to adapt smoothly to the structural changes and external shocks to which it was subjected.

Table 5-1 presents some comparative figures for Canada and four other countries – the United States, Japan, Great Britain and France.

Over this 15-year period, Canada's GNP grew at an annual rate of 3.8 per cent. The period was marked by two recessions, including the severe one of 1981-82. At the end of the period, however, growth appears to be quite similar to that experienced by other industrialized nations. Nothing remarkable here, except that Canada performed somewhat better than France, the United States and Great Britain.

In terms of inflation, Canada also did not stand out. Indeed, with an annual inflation rate in the double-digit range for a few years in the late 1970s in all the industrialized countries, it was really the period itself that was most remarkable. Nominal interest rates followed suit, peaking above 20 per cent in 1980 and 1981. Who would have thought that only a few years later, these sky-high rates for the cost of money would not only disappear without a trace but would be almost forgotten?

On the international level, Canada's economy did not experience a major change. By 1985, our export markets remained as focused on the United States as they were in 1970, despite the efforts of the Canadian government to diversify our international trade. Our terms of trade also varied little.

Overall, then, the Canadian economy adapted very well to the turbulence of these 15 years. But that performance was not necessarily out of the ordinary, only slightly better than most other industrialized countries. All industrialized economies have displayed a high degree of robustness and flexibility. Over the medium term, they were able to absorb some serious shocks while still maintaining a growth momentum. In fact, leaving aside wars that destroy physical capital, the industrialized economies are primarily structured – and positively – by technological progress.

Structuring Forces of the Next 15 Years

Without claiming to be able to foresee all the shocks that could strike the Canadian economy between now and the year 2000, it is possible to identify a number of basic trends that could create tensions in the structure of the economy and influence its future development. These tensions will not necessarily be counter-productive. On the contrary, most of them will tend to have a stabilizing effect, in the sense that they will keep economic growth on a regular path. I have identified seven such trends. While the list is not exhaustive, it sums up the primary structuring forces that could affect the Canadian economy to the year 2000 and beyond.

The Technology Market

The march of technological progress will continue, probably at the average pace of the last 100 years, which is 2 per cent [Cooper, 1986]. Computerization will continue its headlong rush of the last 15 years, fuelled by steady

Table 5-1

Relative Economic Performance, 1970-85

	Canada	United States	Japan	Great Britain	France
			(1970 = 100)		
Economic growth					
Real GNP	174	148	191	133	156
Industrial production	154	160	182	136	120
Employment	–	138	107	105	114
Exports	209	167	355	159	222
Inflation	310	277	311	511	396
Exchange rate ($SDR)	76	101	214	54	62
International terms of trade	96	76	91	102	92

SOURCE *International Financial Statistics*, United Nations.

progress in circuit miniaturization [Peled, 1987]. Biotechnology will have also far-reaching effects, mainly in the pharmaceutical industry and, to a lesser extent, in the agrifood industry [Cooper, 1986]. There should be significant technological progress in the energy area and in the development of materials [Cooper, 1986]. These technological advances will spread rapidly throughout the industrialized world, and Canada will reap their benefits.

Could any of these technological innovations affect the Canadian economy in an unexpected and adverse way? Technological developments with major impacts on the price structure or production cost structure for particular goods could have such an impact. For example, advances in biotechnology could alter the present balance among the main agricultural crops and, to a lesser extent, could also affect the economic potential of Canadian forests. But technological advances of this kind could just as easily help as hinder Canadian producers. My analyses lead me to argue that any adverse effect from technological change will not significantly affect levels of production over the next 15 years in Canada.

Expansion of the Industrialized World

New countries will be joining the ranks of the advanced economies. Today, Korea and Hong Kong are entering the circle of industrialized economies; tomorrow, it may be India, China, Turkey, or socialist countries. These newly industrializing economies will target mass markets for standardized products with low-cost strategies. Certain Canadian industrial sectors may be severely affected by the entry of these countries. However, the Canadian economy has already adapted well to the influx of exports from Japan and other newly industrialized countries. "Upstart" countries of the future will likely concentrate on the same industries, where Canadian producers are now absent or where they have already adapted to low-cost competition. Overall, the continuing emergence of newly industrialized countries will have a declining impact on the economies of the advanced nations.

Falling International Trade Barriers

While is it now fashionable to rail against the erection of international trade barriers, it is exactly the opposite trend that has been under way for more than 50 years. The lowering of barriers is a complex process, and its effects are not evident until after a lag of several years. Large free-trade blocs are now emerging in Europe and North America, and barriers between those blocs are also on the decline. Efforts are now focusing on nontariff barriers, since, for the most part, tariffs themselves have become non-significant. Indeed, rules designed to reduce unilateral trade actions are now among major concerns in the negotiation strategies and policies of Canada and its main trading partners.

Exchange Rate Fluctuations

Would a gradual strengthening of the Canadian dollar to parity with the U.S. dollar slowly strangle the Canadian economy? That is unlikely, since such a rise in value would merely represent a market adjustment. In 1985, when the dollar was worth $0.69, many economists were predicting a 60-cent dollar by 1987 or 1988. The trend turned out rather to the opposite, yet the Canadian economy has not foundered. The exchange rate is an adjustment factor. Any future move towards parity with the U.S. dollar will simply reflect the greater dynamism of the Canadian economy and our superior track record in inflation control. Uncertainty about possible fluctuations may also be perceived as a major problem. But it is difficult to believe that such uncertainty could have more of an impact than the wide fluctuations of the last five years – whose impact were quite marginal for Canada. It should be remembered that fluctuations in the Canadian dollar help to maintain the internal and external equilibrium of the Canadian economy. The adjustment can take the form of a general adjustment of domestic prices (a change in the exchange rate) or a change in domestic demand (leading to unemployment and inflation). Canada is one of the smallest industrialized countries that relies on a floating exchange rate to maintain its external equilibrium. There is no reason to think that the official policy of the Canadian government, in this regard, will change between now and the year 2000. There is no indication, either from the Department of Finance or the Bank of Canada, nor from financial or academic circles, that a fixed exchange rate for the Canadian dollar enjoys any support.[1]

A Changing Regulatory Framework

The paradox of current regulation is its schizophrenic nature. At the same time as the regulatory framework in the major sectors and industries is becoming looser, other sectors are facing greater regulation. For example, in many traditionally regulated sectors such as transportation, communications, and finance, prices and markets are being deregulated and regulatory entry barriers are falling. On the other hand, regulation is on the upswing in other sectors such as food, pharmaceuticals, personal services, and labour markets. It is difficult to assess precisely and absolutely what the net effect of these contradictory regulatory trends will be for the Canadian economy. But as long as Canadian regulation keeps in step with U.S. regulation – and that is the norm, since the same social forces are at work in both countries – our trade balance should not be much affected. Moreover, even if North America decided to follow a different course from that of its trading partners, the result might not necessarily be negative. Our European and Asian trading partners may, in effect, catch up to North America in terms of certain regulations, and vice versa. Whether it is they or we who will suffer the most from increasing regulation is not clear.

A Progressively Richer Economy

Per-capita GNP growth for the past 20 years has held at an average annual rate of more than 2 per cent. This growth is likely to continue, with the result that the Canadian economy will become increasingly rich. This wealth will be reflected in its structure. Accordingly, the share of services in the national output will continue to climb and will pass the 70-per-cent mark. Consumption of information-based products and services will grow rapidly. Certain sectors with income elasticities under one, such as the food industry, will lose ground.

A more fundamental and probably less noticed change will be the steady accumulation of production capital, both in the private and public sectors. There is much talk these days of the critical need to rebuild local infrastructures. But local politicians have clearly magnified the importance of this problem. Indeed, an analysis of the needs demonstrates clearly, as in other sectors, that the contribution of new investment to available productive capital is progressively declining. The "municipal infrastructure crisis" is a good example of that trend. The required investments for local infrastructures, according to the municipalities, add up to a sum in the neighbourhood of $15 billion to be needed over a 10-year period. This represents about one quarter of 1 per cent of the GNP. Thus the anxiety of local politicians is much more political than economic. In fact, the high level of productive capital accumulated in most sectors has become an important stabilizing factor in the production capacity of the economy. Moreover, the increasing capital intensity also contributes to the stability of production.

Increasingly Sophisticated Macroeconomic Management

The depression of 1929-33 will never recur. Today, governments understand too well the importance of the money supply and the stabilizing effects of public demand to allow a repeat of the Great Depression. In addition, advances in business information systems have helped to stabilize inventory cycles. Indeed, major progress has been made in terms of national economic policies. For instance, careful attention is now paid to monetary aggregates. Frequent contact between the leading industrialized countries is institutionalized, making it possible for them to react quickly to stabilize any deteriorating situation. Indeed, the huge deficits of the Canadian and U.S. governments are an indication of the robustness of the industrialized economies' management systems. Politicians are able to rack up deficits of this magnitude without precipitating an economic crisis, thanks to the skills of economic managers who know how to cope with political irresponsibility.

This list of seven structuring factors does not make unanimity. Other observers might cite such factors as the prospect of another oil crisis, North-South tensions, and the changes taking place in the Soviet Union – and, indeed, these factors were considered. I believe, however, that these developments either do not warrant the concern expressed about them or have few or little economic implications for Canada. I concentrated only on those trends which I believe will actively shape Canada's economy. The period 1970-85 provides an excellent benchmark in this respect, because it teaches us that many events which are perceived as critical by politicians and journalists do not affect the economy as much as one might think.

However, let us briefly discuss three factors that I did not mention and which unfortunately are among the favourites of some economists. First of all, I did not mention the crisis in financial markets as a potential structural factor. The October 1987 collapse of the stock market turned out to be a gold mine for many economic commentators who rambled on for several months about "the return of 1929." This was inevitable: a hiccup is always noticeable in polite company. But one year later, the effects of this singular event on the real economy are difficult to pinpoint.

My second example is the high level of government deficits and expenditures as structuring factors. Has Keynes become obsolete? Not at all. Indeed, governments have enmeshed themselves in such a complex web of programs and transfers to their constituents that they have lost flexibility with respect to expenditure levels. "Beneficiaries" defend their interests with a ferocity that scares off any politician looking for some room for manoeuvre. On the revenue side, the room for manoeuvre is just as limited: the word "tax" has become an obscene word. So, not only is it difficult for governments to reduce their current level of expenditures in real terms, it is also difficult to increase them because of the pressures on the taxation side. As a result, there is little elbow room, and change is necessarily slow. This does not mean that no new major program will ever be enacted. The political market will keep on working. Every decade has its burning issues at which money is thrown. In the current decade, acid rain and day-care are at the forefront. In a few years' time, interest groups will learn to flex their muscles and to create new webs in which to trap governments. Luckily, the real economy continues to grow all the while, creating just enough room to accommodate these "new needs." After some 40 years of operating at full throttle, there is not much "pep" left in the engine of government, but the economy somehow manages to cope with its ingrained imperialistic habits.

My third example is the ecological catastrophe – the greenhouse effect, nuclear meltdowns, the decimation of tropical forests, encroaching desertification, and so on. I shall not enter a savonarolean debate on these issues. Such nightmares have ceased to terrify me. One may assume – and it is the assumption that I make here – that the world will deal with these problems. Clouds will temper the greenhouse warm-up. If emissions of Freon, carbon dioxide, lead, or sulphuric acid have to be reduced, they will be, gradually and over an appropriate period of time – soon enough to avert a catastrophe. Yesterday, everyone was terrified of DDT; today, acid rain is the new bugbear. Tomorrow, there will be others.

Canada's Industrial Structure in the Next Century

The foregoing analysis suggests that the Canadian economy is quite stable. This is also indicated by our 1970-85 benchmark period. Certainly change will occur, but it should essentially follow the general evolution of industrialized economies. Still, there will probably be points of divergence and new structural characteristics that will emerge between now and the year 2000. I have taken a look at four aspects of the Canadian economy where observers foresee or would like to see real change taking place:

- our dependency on natural resources;
- the future of the Canadian manufacturing sector;
- the challenges of high technology; and
- regional disparities.

Prosperous Drawers of Water

Raw materials and semi-finished materials represent about 50 per cent of Canada's exports and 25 per cent of our current-account transactions with foreign countries. Forest products, petroleum, and grain represent about two thirds of such "primary" exports. In a medium-term perspective, the key question is whether the international prices of these products will evolve to Canada's advantage or disadvantage. Prices, after all, dictate the level of production and the value of our international trade.

According to one school of thought, there will be worldwide shortages of raw materials. The best-known expression of this point of view is the Club of Rome's 1970 manifesto. According to this view, major price hikes are inevitable. Another school of thought, represented notably by the Hudson Institute, holds that the Earth's resources remain abundant, and that raw-material shortages are unlikely in the medium and long terms. Thus there is no reason to anticipate rising raw-material prices in this century; in fact, the opposite trend is more likely [Singer, 1987].

From a Canadian perspective, our concerns focus on a limited number of commodities. First, there is lumber and paper. Every so often Canadian industrials invoke the spectre of highly productive tropical forests which, theoretically, will soon start producing high-quality lumber and fibre at much lower cost than Canada, as forest management problems are overcome. Competition from this new source would then drive prices down. To a lesser extent, new competition may also come from the southern forests of North America, particularly in the U.S. South-East. The extent and impact of such developments are highly speculative. It is very likely that in the year 2000 (and even in 2010), Canadian industries will still be profitably exploiting the great renewable resource that is the Canadian forest, more than half of whose output is exported. Overall, looking ahead 20 or even 30 years, there appears to be little likelihood of a massive influx of new foreign producers into our traditional markets for forestry products.[2]

Our second export commodity, western grain, faces a more difficult trade environment. Aside from the Soviet Union, there are no major importing countries left. And the Soviet Union will undoubtedly have solved its basic agricultural problems by the year 2000. The consequent readjustments in world grain production will affect international prices and will have spill-over effects on meat prices and production. Actually, major adjustments in the grain economy started about 15 years ago. Indeed, the industrialized world's agricultural sector is in the midst of a fundamental restructuring process which will continue to the year 2000 and beyond. Because of the economic interdependency between provinces, the impact of this process will be felt in all Canadian provinces. As a result of both nominal and real price effects, the farm sector's share of GNP could fall far below today's figure of 5 per cent.

The Canadian metals and minerals sector is relatively heterogeneous. Generally speaking, the outlook for most of these commodities is not encouraging since new, lower-cost sources in the Third World and in the communist countries will gradually come on stream. Over the long term, the prices for most metal and mineral commodities have been stable or declining – a trend that is likely to continue (aluminum will be an exception). Unless new deposits that can be developed at low cost are found, Canadian mining does not face a rosy trade future [Nappi, 1985].[3]

In the energy field, a distinction must be made between oil, gas, and electricity. The Canadian oil industry's level of activity depends on the world price of oil. For 15 years now, the price of oil has been subject to manipulation by OPEC. However, as economic theory would predict, the days of the oil cartel's domination seem to be over. Long-range oil-price predictions are many and have run the gamut of possibilities. While I do not want to become embroiled in a dispute over long-range forecasts, I am willing to hazard a realistic guess that the price of oil, in constant U.S. dollars, will remain in the $10-$25 range. At the two extremes of this range, the Canadian economy will feel the effects, but without any dramatic consequences. Once again, our benchmark period brings us back to reality. The scenarios corresponding to each of the extremes are: an economic boom in western Canada comparable to that of the 1970s, and a period of stagnation in the western provinces similar to the 1980s. Moreover, the two scenarios differ by a few billion dollars more or less in the federal deficit [Schweitzer, 1983].[4]

On the other hand, Canada will continue to export gas, regardless of price, up to the year 2000 and beyond. These exports, however, will represent only a small fraction of total Canadian exports – a mere 3 per cent. The same is true of electricity and electrolyzed metals such as aluminum. Little radical change in the structure of our exports is likely to occur in this area.

Overall, then, what can we say? To the extent that the Canadian economy is natural-resource dependent, it will be affected by international commodity prices between now and the year 2000 – but only to a limited extent. Canada's main problem lies in agriculture, where world overproduction is bringing a major transformation of the sector, with progressive marginalization and significant regional impacts.

Manufacturing: Small Is Beautiful

Future historians may say that 20th century economists had the same kind of fixation on the manufacturing sector that the physiocrats of the 18th century had on agriculture. It could be because the bulk of international trade deals with manufactured goods.

This situation is on the verge of change, however. For one thing, the export share of services is on the rise, and thus services are becoming more important. For another, the production methods of the manufacturing sector are undergoing profound change. Piore and Sabel [1984] argue convincingly that the search for economies of scale, which was the driving force behind the manufacturing sector in the 20th century, is now becoming less and less important as a structuring element. First, technology is increasingly levelling economies of scale. Second, fluctuating world demand, brought about in large measure by volatile exchange rates, has done much to decrease the advantages of mass production upon which economies of scale depend. And third, people with greater personal wealth demand greater variety. The combined effect of these three factors is gradually stifling mass production, as exemplified by the traditional organizational structure of the North American automotive industry. In the manufacturing sectors of the industrialized nations, flexibility is more and more becoming the catchword, leading to smaller-scale production, lower entry barriers, and increasing product diversity. Those forces are reshaping the structure of the manufacturing sector.

It is by taking advantage of these trends that Japanese industrialists have made inroads into many sectors, that the Germans have come to dominate machine tools, and that the Italians have established themselves as leaders in textiles and high-fashion clothing. Flexible, smaller-scale production is spreading throughout the manufacturing sector and offers new opportunities to innovative companies, small businesses, subcontractors and new enterprises.

The Canadian manufacturing sector has much to gain from these trends. The generally small size of our factories will cease to be a significant disadvantage. Moreover, the Canadian monetary area will continue to define Canada as a small market. The new processes and technologies that are developed and tested in Canada reflect this reality. An example in point is the Honda plant in Alliston, Ontario. Phase I aims at an annual production of 70,000 automobiles, which will be increased to 140,000 in Phase II. This latter figure is less than half of the output of a typical automotive assembly plant, 300,000 cars per year, which is still generally considered as the optimal level. By using new technologies and innovative designs, and relying more on subcontractors, Honda has overcome most of the difficulties involved in lower-scale production, while retaining greater flexibility. Honda intends to build several Alliston-style plants in Europe in coming years.

The uncertainty surrounding Canada's currency area is enough to create significant barriers to non-Canadian production. This uncertainty favours the producers established in Canada. Canadian businesses that will develop behind this barrier will learn to meet smaller-size challenges and to take full advantage of the inherent flexibility. In the medium term, this could give a structural advantage to Canadian businesses with exportable products or services.

The free-trade agreement will reinforce these trends by eliminating, or at least lowering, artificial trade barriers with the United States. The exchange rate should remain within a range that will enable Canadian producers to compete with their American counterparts in the long run. Because our producers excel in small-scale production, which grants them greater variety and greater flexibility, they are better placed to be competitive over the long term.

The debate over the manufacturing sector has often dealt with productivity. The consensus seems to be that Canadian producers are losing the productivity battle. But what really matters is the exchange rate, which determines the value of Canada's output on foreign markets. Another important problem in the productivity debate is that of the unreliability of the data. The difficulties involved in measuring productivity are well known. Comparisons are no less difficult, since the sectors where Canada and the United States are in direct competition constitute only a small part of the manufacturing base. Consequently, to gauge the performance of the Canadian manufacturing sector on the basis of productivity seems to me a rather fruitless exercise, particularly in the context of floating exchange rates.

A more promising approach is entrepreneurship; in other words, the ability of Canadian businessmen to launch new enterprises and conquer new markets. As long as the environment in Canada is favourable to business startups and as long as Canadian enterprises are willing to reach further and higher, the Canadian manufacturing sector will remain vigorous.

High Technology: Our National "Holy Grail"

The greatest investor in research and development (R&D) in North America is General Motors; it accounts for 8 per cent of all private-sector R&D in the United States. This is as much as is spent by all U.S. pharmaceutical companies combined [see *Business Week*, 20 June 1988, p. 139]. Some may find this fact surprising. But it reminds us that we must be circumspect when discussing the economic importance of R&D.

In fact, this cautionary note is more important than ever. Our political leaders, influenced by the techno-scientific establishment, were eloquent on the technological challenge. To be ready for the 21st century, goes the argument, Canada must be in the vanguard of high-tech development and utilization. Otherwise, the country's standing in the ranks of industrialized nations will slip. According to conventional wisdom, the key to staying in the race is to spend 2 per cent of our GNP on R&D.

It is far from certain that this line of reasoning is valid or relevant. One or two more Canadian General Motors will not move Canada significantly up the high-tech roster. The premise that R&D expenditures play a crucial role in economic development is based on flimsy foundations. A more promising approach is to study Canada's performance as a "developer" and as a "user" of new technology.

The development of new technologies is done where leading-edge fundamental research meets market needs and innovative products. Fundamental research supplies the breakthroughs that allow new technologies to grow and flourish. Such basic research is carried out primarily in universities, where it also helps to mould scientists who will become leaders in their respective fields. There are local economic benefits from research. Through consultation, recruitment of high-quality university graduates, and contacts between researchers, the local industrial community is well placed to take advantage of the benefits of scientific discoveries and basic research in the area. Indeed, it is this symbiosis between fundamental researchers and industrialists that has given rise to the creation of large technological agglomerations such as the San Francisco Bay area, Boston, and England's Cambridge [Miller and Côté, 1986].

Canada's main weak point as a "developer" of new technology is fundamental leading-edge research. Our shortcomings in this area are essentially the result of structural faults in university research funding. In Canada, university research is primarily government-funded. Research funds are allocated among a large number of institutions according to the rules of the political market. In contrast to the situation in the United States, funds do not tend to concentrate on elite university centres. The system in the United States has succeeded in creating and sustaining high-quality, internationally recognized research centres. Our neighbours, therefore, have the advantage of possessing a significant number of independent well-financed research-oriented universities. Canadian institutions, by way of contrast, are usually financed on the basis of student enrolment and geographic considerations. The University of Manitoba has as much right to research centres and research grants as the University of Toronto.

Despite the best of intentions and despite the conclusions of numerous task forces and expert reports, the Canadian political system continues to recognize the rights and privileges of all citizens from Sherbrooke to Belleville to Saskatoon, each region receiving its fair share of grants for basic research. Such a system will not give Canada the equivalents of MIT and Stanford.

This does not mean, however, that nowhere in Canada are there pockets of concentrated research funding and of research activities. In fact, universities in Toronto and Montréal account for the lion's share of research grants in Canada. But the brutal discrimination that has created the great U.S. centres of excellence is unknown in Canada.[5] The lack of world-class "research powerhouses" among our universities represents a weak link in the chain leading to high-tech agglomerations.

For the purposes of this paper, it is best to treat North America as one large region in terms of research. The birth of new technologies is concentrated in a few geographic locations centred around major research institutions. In specific sectors, such as medical research, certain Canadian cities may achieve prominence. But for new technologies with commercial potential (and medicine is not one of these), there are not many concentrations of first-rank researchers in particular Canadian cities or regions.

This situation is not necessarily a cause for alarm. Clusters of high-tech industries can develop without close proximity to world renowned research centres. Montréal is closer to Boston than it is to Brandon. Technology transfers are easy when properly organized, and Canada is good at adopting new technologies. Many Canadian firms have the critical mass of highly qualified staff needed to keep up with technological development in their industries, and even to lead the way. Whether the basic research leading to these new technologies was conducted in the United States or Europe is of little importance. What is critical is whether Canadian companies know enough to draw their water from the best technological wells [Makino, 1987].[6]

On this question, the Royal (Macdonald) Commission [1985, vol. 2, pp. 97-99] concluded that Canada was trailing the United States slightly in the adoption of new technologies. I do not feel this lag is particularly significant. Returning to our 1970-85 benchmark period, did Canada suffer because of a lag in incorporating new technologies into its industrial structure? A review of the literature does not lead to a negative conclusion. The Macdonald Commission found that new technologies tended to be adopted in Canada a few months later than in the United States. The fault in that argument is that it views the United States as a single entity and always compares Canada to the leading edge regions in the United States. It is quite possible that no difference on this score exists between Canada and the United States Midwest, for example. In addition, it is highly probable that this situation does not change significantly over time; this would explain why there is little or no mention in the economic literature of a growing lag or missed opportunities for Canada in incorporating new technology into its industrial structure.

In the past, the Science Council of Canada has decried Canada's technological lag and has proposed radical new strategies to push Canada into the vanguard of research. In sounding such an alarm, the Science Council is acting as a typical pressure group promoting the interests of its clients – in this case, scientists. Despite such dire warnings, however, Canada's geopolitical reality is not likely to change. Research grants will continue to be allocated on a egalitarian basis throughout Canada. Canada will also continue to lag behind in basic research. But we will also continue to adopt new technologies quite rapidly into our industrial structure, as do most regions of North America. So, while Canada is perhaps not, for many reasons, a good "developer" of technology, its industries can be good assimilators of new technologies. In that respect, we might want to worry less about the dire predictions of the Science Council and instead focus our attention on our Chambers of Commerce.

Regional Disparities

The persistence of regional disparities is one of the main themes of the political debate in Canada. The situation is well known. On an average scale of 100, per-capita production varies from 50 in Newfoundland and 70 in the other Atlantic provinces to 115 and 120 in British Columbia and Alberta, respectively; Ontario stands at 110, and Quebec at 80. More importantly, as the Economic Council pointed out in 1977 and the Macdonald Commission in 1984, these productivity gaps have remained relatively constant over several decades.

What is remarkable, however, is something noted by the Royal (Macdonald) Commission [1985, vol. 1, p. 228]: average disposable income per household, adjusted for the cost of living, is much more equal between provinces, ranging between 80 and 85 for the Atlantic provinces, between 95 and 103 for Quebec and Ontario, and between 91 and 111 for the western provinces. Indeed, regional differences in this respect are far less significant than intra-provincial disparities. This much more egalitarian distribution of household incomes reflects and justifies the extraordinary efforts that the Canadian political system has made to redistribute wealth between provinces.

The question of persistent regional disparities has been examined from all angles by Canadian economists. Various arguments have been put forward to explain their persistence [Courchene, 1986].[7] However, the social and political acceptance of the "post-redistribution" situation makes productivity disparities much less critical. After all, the citizens of Canada are comfortable. If the system works, why discard it?

A number of recent studies have been devoted to the vulnerability of the western provinces to changes in the price of oil. Numerous scenarios were examined. The general conclusion is that, whatever assumption is made about oil prices, the industrial structure of the western provinces should not change greatly over the next 20 years. More specifically, the dreams of developing a larger manufacturing sector in western Canada will meet with only very limited success. Policy aiming at "industrializing" western Canada will not change the historical dependence of the western provinces on the primary sector for their economic base [Schweitzer, 1983; Economic Council, 1984].

This dream of "industrializing" western Canada is based on a naive vision of how development takes place in the manufacturing sector. Development is not accomplished by importing businesses from outside: a General Motors plant, a Canam Manac plant, a Magna plant, and so on. Branch plants rarely constitute the foundation in which a region's manufacturing sector is developed. Rather, local firms generally form the basis of the manufacturing sector, before branch plants appear on the scene. Moreover, the industrialization process requires favourable entrepreneurial conditions sustained over several generations. A final factor contributing to the impracticability of the dream of an industrialized western Canada is the fact that the pivotal role of the manufacturing sector in the development of a region's economic base is becoming less important in modern economies.

Efforts to diversify rapidly the economic base of the various regions of Canada thus run into some serious obstacles. Two of these obstacles merit special attention. First, one of the fundamental conditions for entrepreneurship is the existence of "incubating" organizations, where the entrepreneur plans the launching of his company while earning a living. The need for incubation explains the linkage between new and existing enterprises in a region. In short, the sectors where basic entrepreneurship is encountered in a region reflect the existing economic base. Regions with only a limited industrial sector, such as the Atlantic and western provinces, cannot expect much in terms of new manufacturing enterprise development. Change takes place slowly. Second, to believe that importing branch plants can speed up the process is naive. Not only are branch plants in relatively short supply, but where they locate depends on companies' own business strategies – something over which governments have very little influence. In particular, primary-resource regions rarely offer strategic attractions for such enterprises.

Thus the industrial structure and the inherent regional disparities can change only slowly in Canada. Rising oil prices would benefit the West, for example, by stimulating population growth and the development of the service industry. It is unlikely, however, that such increases will be as dramatic as those that occurred during our benchmark period. Between 1970 and 1985, Alberta's share of manufacturing jobs in Canada went from 3 to 4 per cent.

The Atlantic provinces are not likely to see any dramatic changes in their situation. Hibernia and other oil projects will not have much of an effect on their industrial structure. The impact on incomes will be more noticeable, but these will be offset by lower federal transfers. On the other hand, the Atlantic provinces will benefit from the steadily rising importance of services in the final demand of industrialized economies. Mid-sized cities such as Sydney and Moncton are already significant suppliers of services to their hinterlands. They will benefit, therefore, from the decentralization of economic production that will take place as the economy accommodates a greater demand for services.

The phenomenon that may come to dominate the regional-disparity debate in Canada is perhaps the growing gap between urbanized regions where services can be supplied efficiently, and rural areas, where the economy depends heavily on primary- and secondary-sector production mostly in slow-growth sectors. Generally speaking, this gap will be influenced by the expected decline in the prices of natural resources, increasing over the medium term. On the other hand, the most heavily urbanized areas of Canada will prosper between now and the year 2000. More than policy, it is this major trend that will likely come to dominate the regional-disparity debate.

Canada in the Year 2000

Economists like to predict major turning points and dramatic shifts in the economy. Unfortunately, judging from a careful analysis of our benchmark period and from the presence of several stabilizing factors, the evolution of Canada's industrial structure between now and the year 2000 should not present any surprises. This is not to say that there will be no change or that change will not be significant, but simply that developments will essentially be an extension of the current trends.

During the 1970-85 period, the Canadian economy grew by 45 per cent on a 10-year basis, and the population grew by 10 per cent on the same basis. This performance rates slightly better than that of the United States and of most Common Market countries. The Canadian economy's performance over the next 15 to 20 years should be similar. Economic growth may be slightly better or slightly worse than that in other industrialized countries, depending on how Canada is affected by the international economic environment, technological change, and the choices made by its political leaders.

The industrial structure of advanced economies will gradually evolve in the direction of more services. This will favour urbanized regions. The Windsor-Québec City corridor, which accounts for almost 50 per cent of Canada's population, should continue to outperform the Canadian average in economic terms, as should the other main urbanized areas of Canada. The situation in the western provinces will depend on oil prices. Their future prospects are tied to this factor, especially in view of the decline of their agricultural sector.

The political system can be counted upon to attenuate the regional impacts of any productivity gap. The current performance of the Canadian political system, at least from the perspective of those who believe in the merits of national redistribution, is excellent. There is not much chance that this redistribution can be significantly improved, however, so the present pattern of disparity should persist.

The impact of the Canada-U.S. Free-Trade Agreement is currently a favourite discussion topic. The Economic Council of Canada predicts that a few hundred thousand new jobs would be created as a result of greater economic efficiency. In concrete terms, such estimates are very tentative. It is the direction that matters, not the actual numbers. Moreover, this increase represents only a small fraction of the new jobs that a continuation of current economic trends would bring. So the projected job benefits of the free-trade agreement, although clearly positive, are very difficult to measure. Efficiency gains will undoubtedly generate benefits, but measuring the extent of these gains a priori is not really possible.

The main consequences of the free-trade agreement could be on another level altogether. Because such consequences are institutional in nature, they are not captured by economic models. Better North-South communications and greater stability of the trade framework will encourage enterprises to reorient their business strategies along a North-South axis. The consequence will be greater institutional integration: U.S. firms will expand into Canada, and Canadian corporations into the United States. As far as trade between the two countries is concerned, this integration will take the form of the efficiency gains so beloved of economists. But in a wider and much more subtle sense, this phenomenon will lead to more extensive organizational integration, both in terms of people (Canadians working in the United States and vice versa) and in terms of methods, techniques, and products. The impact of such integration is difficult to measure, and that, in fact, is one of the concerns of Canadians opposed to free trade, who see the free-trade agreement as a step towards greater political and cultural integration.

A question more relevant to our discussion is the impact that integration will have on the institutional dynamism of Canada's economic base. Will Canadian-based corporations become more active in a North American environment than in today's primarily Canadian one? That question is not easy to answer. Integration inevitably means more branch plants, which are essentially dependent, non-dynamic institutions. On the other hand, greater opportunities will open up to Canadian entrepreneurs and businesses. Thus integration also means larger head offices located in Canada, with all the support services that such establishments require. This factor may more than offset the consequences of having more U.S. branches and subsidiaries operating in Canada.

Moreover, the consequences of the free-trade agreement cannot be properly assessed without taking into account the Canadian exchange rate and the institutional structure that regulates it. As long as the current floating-rate system is maintained, the effects of the deal will be largely offset by compensatory movements in the exchange rate. True, firms will gain from greater stability in the regulatory and political environment. But they will still be disadvantaged by not knowing medium-term relative costs between Canada and the United States.

Overall, variations in the exchange rate will have a greater impact on the relative costs of operating in Canada than tariff reductions and production rationalization. In the short run, these fluctuations are fairly independent of real costs in both countries. For example, the almost 20-per-cent hike in the Canadian dollar between 1986 and 1988 did not stem from changes in relative costs between the two countries. But because a higher exchange rate affects every aspect of Canada-U.S. trade, the impact of this increase on the terms of trade is far greater than the potential impact of the free-trade agreement.

Such considerations have led some observers to call for a return to a fixed exchange rate – a trend that is also evident in Europe, where proponents of pegged exchange rates are becoming more vocal. Fortunately, Margaret Thatcher is alive and well and is vehemently opposed to such arrangements. It remains, however, that the advent of fixed exchange rates would drastically change the analysis underlying this paper. Within a rigid monetary framework, the evolution of the Canadian economy would depend on the international economic environment; the adjustment mechanism would no longer be based on changes in relative prices, but on variations in demand and, ultimately, on changes in the labour market. Such adaptations would be much more abrupt than under the current system, where adjustment by floating international prices is gradual.

The concept of optimal currency areas proposed in the early 1960s by Robert Mundell [1961] has found few sympathetic ears among either politicians or economists. It is clear that Canada does not constitute such an optimal area. The Atlantic provinces and the western provinces would benefit greatly from escaping the tyranny of central Canada's dollar. But for reasons that remain unclear, this proposal is regarded as anathema and anti-Canadian. Indeed, our own intellectual backwardness condemns Canada to suffer the consequences of a single monetary zone [Dudley, 1972].[8]

It would also be desirable that Canadians reject any proposals to integrate Canada within the U.S. monetary zone, with a fixed exchange rate system. First, given the volatility of U.S. economic conditions, Canada would not receive fair prices for its goods and services. Second, with a fixed tie to the U.S. dollar, the value of the Canadian dollar would be much more vulnerable to the whims of international capital markets. The particular concerns of the Canadian economy would carry little weight in such an institutional framework.

Aside from the free-trade agreement with the United States, a return to a fixed exchange rate would be the most significant single event to affect the institutional framework of the Canadian economy between now and the year 2000. The possibility of such a backward-looking measure cannot be precluded, given that human stupidity has prompted even greater economic blunders in the past. If one assumes, however, that such a backward step will not occur, Canada's present institutional framework should remain in place. Thus between now and the year 2000, Canada's economic evolution should be gradual.

Conclusion

We now return to the three questions asked at the beginning of the paper. First, Canada's industrial structure should continue along the path it has followed for the last 20 years, without any major deviations. Around the year 2000, Canada's industrial structure will be as different from today's industrial structure as today's is from that of 15 years ago. Second, Canadians will be better off in the year 2000 than they are today. Real GNP per capita should grow by at least 1 per cent per year. In addition to this increase in output, the quality of products will improve as a result of technological progress.

The third question is whether our situation will improve relative to that of the United States. That is more difficult to answer. It is likely that we will not be any *worse* off than the United States. After all, the Canadian economy has managed to keep pace with the U.S. economy for about 100 years now. But that Canada will surpass significantly the United States is also not likely. True, Canada enjoys a number of advantages: its own monetary zone, greater industrial flexibility, less public money committed to defence spending, a higher savings rate under the same conditions and objectives, and so on. But are these significant? Ultimately, it is the dynamism of entrepreneurs and enterprises that most influences the relative growth of a particular region.

In relation to other industrialized countries, Canada may advance or fall a rank or two. Our agricultural problems are worrisome, and the political fall-out may be significant. This is essentially a domestic problem whose importance will decline: farmers will soon account for less than 3 per cent of the population, and their political clout will decline. Moreover, our exporting enterprises, meanwhile, are turning the new virtue of flexibility to their advantage, and they should have no trouble taking up the slack of declining agricultural exports.

However, the greatest impact on the economy between now and the year 2000 will come from the relentless march of technological progress. Higher productivity and efficiency in the industrialized world as a whole, spurred on by evermore powerful technologies, should gradually rub off on the Canadian economy. The beginning of the next century will usher in a new age of prosperity for the industrialized world of which Canada is a part.

Commentary by Ken Norrie

I would like to congratulate Marcel Côté on his paper. It is everything the Economic Council must have hoped for when it planned this session – insightful, provocative, and witty. It is also incredibly optimistic. As I read it, I found myself humming, "Don't worry . . . . Be happy." Anyone taking up the offer in this song to phone when they are worried, and who cannot get through, would be well advised to try Marcel Côté next.

I may well have been the wrong choice of discussant for this paper, at least if the Council hoped for some fireworks. Had I been given the topic, I would have approached it in much the same way as Marcel Côté did, and I would have ended up with much the same message, tempered a little perhaps by a dourness that comes either from my Scottish ancestry or a lifetime of Prairie winters. This basic agreement explains why I have chosen to organize my comments so closely around Marcel Côté's basic structure.

Overview of the Paper

The paper begins by posing three questions: What will the Canadian economy be like in the year 2000? Will structural differences between it and its main trading partners be greater or smaller? Will our relative economic status improve or deteriorate?

Mr. Côté addresses these questions systematically. He first sets out a general framework or "model" which will guide the subsequent analysis. No surprises here. Canada is first and foremost a classic, small, open economy. In the future, as we were in the past, we will be confronted with a succession of technical, economic, and political disturbances from abroad, to which we shall have to respond. Governments play a dual role in this framework. They add to the demands on the economy as they pursue this framework. They add to the demands on the economy as they pursue their respective agendas, but they also possess the tools to steer development in the directions they desire. In short, the main influences on the Canadian economy, negative and positive, to the year 2000 will come as exogenous shocks, but it is up to us to minimize the damage they can do or maximize the benefit they can provide.

The remainder of the paper follows logically from this framework, in the form of two general questions. What will be the main exogenous influences on the economy to the year 2000? How adept will we be at dealing with them?

The key to predicting the future is held to lie in analysing the past. The years 1970-85 contain some of the greatest shocks our economy has ever faced, so they provide a useful test of its resiliency. If one is able to assign a passing grade for this turbulent time, one is entitled to be more sanguine about the future. Six disturbances are singled out – five economic and one political. The economic ones are the abandonment of the Bretton Woods Agreement, the influence of Japan and the other newly industrialized countries (NICs), the two oil price shocks, the computer, and the major recession of 1981-82. The only domestic political one to qualify is political uncertainty in Quebec from the 1960s to the referendum.

The conclusion? Canada handled these shocks well, especially compared to our major trading partners. Real GNP, set at 100 in 1970, rose to 174 by 1985 compared to 148 for the United States, 133 for the United Kingdom, and 156 for France. Of the countries listed, only Japan did better. Our inflation record over the same period was a little worse than that in the United States, about the same as that in Japan, and markedly superior to those in Great Britain and France. The other indicators shown – industrial production, employment, exports, exchange rates, and terms of trade – offer similar conclusions. The text mentions one further mark of successful adaptation – the fact that we have virtually forgotten the experience of 20 per cent plus nominal interest rates.

With the basic resiliency of the economy established, the next step is to identify the main developments that the economy will need to deal with over the next 15 years. Seven are identified formally, three more are mentioned and dismissed immediately as improbable or inconsequential, and another three are dismissed after some discussion. The ones that receive formal recognition are technological advances, extension of the industrial world, further trade liberalization, exchange rate uncertainty, the changing regulatory framework, the implications of real income increases for economic structure, and the growth in the sophistication of macroeconomic management. Another oil crisis, North-South tension, and structural change in the Soviet Union are dismissed in passing. Financial crises, government deficits, and ecological considerations are addressed at the end of the section but ruled unimportant.

The prognosis? There is little cause for alarm and some cause for optimism. Technological change might affect particular parts of the Canadian economy adversely, but it is just as likely to benefit it in other areas. We have already largely adapted to the NICs of the 1960s, 1970s, and 1980s, so those of the 1990s should be no special challenge. World trade will be liberalized further, not restricted as current fashion has it, and Canada has used this tool successfully in the past and shows no sign of giving up on it now. Regulation is both increasing and decreasing in Canada, but so is it in our main trading partners, and it is relative performance that really matters. Real income growth will contribute to a further increase in the share of services in the economy – no apparent difficulties there – and it will allow us to add to our stock of public and private capital. Economic managers have learned enough, and have established enough international linkages, that they can effectively compensate for the irresponsibility of our political masters.

The October 1987 financial crisis had no apparent long-run real effects, so there is no reason to dwell on future "hiccups." Governments have responded slavishly to the spending demands of more and more vested interest groups and have showed less and less inclination to face the political consequences of raising taxes to pay for them. Yet, sustained real economic growth will accommodate both existing demands and new ones. Even ecological catastrophe is not to be feared; if adaptation is needed, it will be accomplished.

To this general overview, Mr. Côté adds more detailed discussion of four particular issues relating to Canada's future industrial structure. Our current dependence on natural resources will be a mixed blessing in the future. Forest products will remain competitive, but grain will not. Minerals face competition from new, low-cost supplies, and energy will remain strong but will not boom as in the 1970s. The only real problem is agriculture, where a complete restructuring needs to occur with all that process implies on a sectoral and regional basis. Manufacturing will benefit from increased access to U.S. markets, but even more from the fact that technology is increasingly rendering size less and less important as a determinant of productivity. Indeed the message there is even stronger. Not only will we be less disadvantaged by smallness, we will actually profit from it.

Canadian participation in high-tech industries is more complex to predict. We will likely never produce much technology ourselves for reasons ranging from our poor historical record to a fixation on regional equity which precludes us from ever setting up true centres of excellence combining universities and industry. But Canada has been proficient at assimilating new technologies and should continue to be so in the future. The view that we must be a producer of technology if we are to be successful users of it is dismissed as vested interest pleading by that favourite whipping boy of economists – the Science Council.

Regional economic disparities come in for special attention. The view is mainstream, but no less controversial for that. Disparities in real economic performance exist, they have done so in roughly their current form for a very long time, but transfer programs compensate almost fully for the gaps in earned income. Nor is the situation likely to change much in the future. The energy boom made the western provinces much richer but, not surprisingly, it did not industrialize them. Neither Atlantic Canada nor the West is likely to attract new, high-tech activities. Manufacturing will remain tied to its existing base in central Canada for what might broadly be termed agglomeration economy reasons. Thus the already favoured Windsor-Québec City corridor will be even more favoured, creating an urban-rural dimension to the regional disparities debate.

The paper ends by returning to the questions posed at the outset. Canada's industrial structure will look different in the year 2000 from what it does today, but it will get to that new configuration slowly and steadily rather than dramatically and abruptly. The issue of comparative industrial structures is not addressed specifically, but I think it is fair to surmise from the text that Mr. Côté would not see Canada deviating much from its major trading partners. Our position in the world is more difficult to be precise about. We will definitely be richer, with real per-capita GNP expected to grow at about 1 per cent per annum. This performance should be no worse than that of the United States, although there is a hint that we might fall a little, relative to other industrialized and industrializing countries.

Analysis

The adoption of a framework at the outset of the paper, and the author's success in sticking to it throughout, provide an obvious way to evaluate the contents. I need only ask, and answer, seven questions. Do I accept the general framework or model, and do I find it consistently and usefully applied to the task at hand? Do I believe the interpretation put on the 1970-85 period? Do I think the structuring factors marked for attention to the year 2000 are a necessary and sufficient set, and am I convinced by the analysis of their likely effects? Finally, are the four specific industrial structure issues singled out for attention, the most important, and am I convinced by the argument attached to each? I shall look at each of these issues in turn.

The Framework

It would be surprising to find a sometimes economic historian disagreeing with the general political economy framework that underlies the paper. Positioning Canada as a small open economy continuously reacting to external technical, economic, and political developments, makes sense whether one is talking about economic life in New France, in Upper Canada in the 1840s, in Canada during the Great Depression, or in Canada today. At the same time, we teach that domestic political arrangements and institutions did matter, and did so increasingly over time. Staple determinism works as an explanation of early development in

Newfoundland and maybe even New France, but no account of the 30 years after Confederation could leave out John A. Macdonald, just as no account of the 1970s could leave out Trudeau, Lévesque, and Lougheed. Anyone who thinks politics do not matter much needs only put themselves in the shoes of this discussant, trying to write some comments on the future of Canadian productivity on the weekend preceding the 21 November federal election. I had two quite different drafts of the comments, one with the Canada-U.S. agreement going ahead and one with a Turner-Broadbent coalition blocking it.

If the framework is appropriate, does Mr. Côté use it to full advantage? Not always, I would argue. Certainly he is faithful to the first half of it. The past and the future are a parade of exogenous disturbances to which Canada has, or will, adjust. The role of political factors is not as consistently developed, however. Governments likely have more scope both to correct and to distort the private market than the author allows. I shall provide some specific examples of this point below.

The 1970-85 Period

I find the thesis of this section to be generally persuasive, although I would add a couple of additional shocks to the list, ones which may temper somewhat the conclusion that the economy adjusted adequately. The most obvious addition is the productivity slowdown evident in most western industrial nations, Canada included, after 1973. That some sort of fundamental change in economic growth performance took place is indisputable, even if the causes and implications are still the subject of much disagreement. Real GDP per capita in Canada grew at an average rate of 3.8 per cent between 1962 and 1973, fell drastically to 0.84 per cent between 1973 and 1982, and then rose slightly to 1.08 per cent between 1982 and 1985, and 1.27 per cent between 1985 and 1987. Comparable rates for the United States are 2.64, 0.55, 3.09 and 2.45 per cent. Other industrial countries display much the same pattern, although the initial decline is typically not as severe or, therefore, the recovery quite as marked [Helliwell, 1988*a*, Table 1].

The explanation for this marked slowdown in economic growth is still not clear. The main question is whether it represents some structural or long-run change in productivity, or whether it can be explained by shorter-run factors, with the underlying rate of technical advance largely unchanged. Those favouring the former explanation have sought the explanation in a decline in the rate of new investment, a slowdown in the application of new knowledge to industrial production, a slower growth of labour skills, the growing preponderance of lower productivity service industries, and the increase in the role of government [see *Journal of Economic Perspectives, Symposium*, 1988]. Helliwell, et al. [1986] are the most prominent exponent of the alternate view. They find changes in output per worker between 1973 and 1982 to be almost entirely explained by a decline in utilization ratios. What decline in the growth of normal output per employee was due to the substitution of labour for capital and energy in response to changes in their relative prices.

It matters a lot, of course, whether the productivity slowdown is short term or long term, given the importance of economic growth in our society. If Helliwell and others are correct, the return to more normal macroeconomic performance and the apparent stabilization of international oil prices should mean that future economic growth will be more like that before 1973 than that from 1973 to 1982. If they are not, western societies have a lot of adjustments, political and economic, to make to lower long-run growth rates. I wonder then whether the omission of this factor by Mr. Côté implies that he is a "Helliwellian."

Mr. Côté quite correctly identifies political developments in Quebec as an important shock. The challenge to Canadian federalism in the 1970s and early 1980s went much deeper than that, though. Energy pricing and taxation disputes caused some in my part of the country to flirt with separatism for a time as well. Less dramatic, but potentially more important, is the point that regionalism has grown in other forms since World War II. Provinces now routinely engage in economic planning exercises – province-building in the jargon of the field – which is fine, except that these often involve erecting barriers to the interprovincial flow of goods, services, and factors of production, which presumably is not so fine. Concern for the integrity of the Canadian economic union became so widespread at the start of this decade that it made up a major part of the mandate of the Macdonald Commission.

The costs of this growth in regionalism are difficult to determine yet. One might point to how quickly contentious issues such as the Quebec referendum or the energy disputes were resolved as illustrations of how flexible Canadian federalism is. But the scars of these federal-provincial wars are still there, as a few examples will illustrate. Witness the warnings from Premier Bourassa on the need to ratify the Meech Lake Accord. Witness how many Westerners, myself included, were quick to endorse the energy provisions of the Canada-U.S. Free-Trade Agreement on the grounds that they effectively precluded another NEP. Witness the concern over whether provinces will go along with provisions of the Canada-U.S. Free-Trade Agreement they see as falling in their area of authority and which compromise their own economic development strategies.

Canadian labour markets clearly underwent some kind of structural change in this period as well. Most participants will have seen a time-series plot of national unemployment rates with its clear drift upwards over time. A more graphic way to make the same point is to note that Prime Minister Diefenbaker was in great political trouble in the early 1960s with an unemployment rate of around 7 per cent. Prime Minister Mulroney, by comparison, boasted in the recent election campaign that his government had managed to reduce unemployment to near 8 per cent and should be rewarded for it. I presume this topic will come up in other papers, so I drop it here.

The final development I wish to point out is the rise of what Tom Courchene has called the protected society. As he defined it eight years ago:

> A protected society is one in which many or most groups (from small special-interest associations to entire provinces) have turned towards government not only to help them achieve a relative income position within society which they perceive might be unattainable without such regulation, but also to render them immune to the vicissitudes and discipline of the market economy [Courchene, *Canadian Journal of Economics*, November 1980, p. 559].

He saw this development as being especially problematical in the 1980s when there would be a greater need than ever for the economy to be flexible and adaptive.

The free-trade agreement, and in particular the electoral verdict on it, provide an interesting test of this thesis. One might argue that Canadians' apparent willingness to take what a former boss of mine called "a leap of faith" indicates that Courchene was too worried; we are willing to take on the unknown if the potential material gain is large enough. The implementation and administration of this agreement will bear watching.

The 1985-2000 Period

My reaction to the discussion in this section is to quibble with a few points, to add some further conditioning factors to the list, and try to temper somewhat what I feel may be excessive optimism about the flexibility of the economy.

My quibbles really are more than that. Can we really expect international trade to be further liberalized in the next decade? Maybe I am part of the fashionable crowd referred to in the text, but I always found the point that further progress through GATT was improbable in the near future to be a persuasive argument for proceeding with a Canada-U.S. Free-Trade Agreement. Recent literature on international macroeconomic coordination suggests that exchange rates can be too high or too low for substantial periods of time, implying that they are not always the flexible corrective device Mr. Côté wishes them to be. I have not seen much of the output of the DRIE/Statistics Canada/Fraser Institute studies on services yet, but the entire project was premised on the postulate that this sector might be different in important ways from traditional goods industries. I agree there is a fair amount of vested interest pleading with respect to the provision of municipal infrastructure, and that it is more a political than an economic problem, but it is surely no less a problem because of that. I defer to those more expert than I am on the issue of government deficits, but again, my sense would find its quick dismissal unsettling. Finally, I would like to believe the summary repudiation of the "sky is falling in" school of ecological catastrophe, but I am more loath to do so now than I might have been 10 or even five years ago.

I would add only a couple of further conditioning factors to the list. The first two follow from the previous section. I need yet to be convinced that the desultory macroeconomic performance of the 1970s and early 1980s is behind us. One's views on such matters may reflect when the last class in graduate macroeconomics was taken, but I still find it difficult to believe that unemployment rates of 8-10 per cent are in any sense long-run equilibrium ones. I am also more concerned than Mr. Côté appears to be that regionalism and federal-provincial conflicts could derail our best policy intentions, be they in implementing free trade or otherwise.

One trend not mentioned in the text is the aging of the population. Projections of age structure differ significantly depending on values assumed for the various demographic parameters, but all forecast a significant increase in the proportion of the population over 65 years of age. The implications of such a shift are equally uncertain, but include concern over the impact on aggregate demand, the possible need to reallocate public expenditures towards services for the aged, medical care in particular, and the possibility that the CPP/QPP may be underfunded. One can always discern mechanisms of adjustment to aging – a more liberal immigration policy, reform of the CPP/QPP, radically different methods of dispensing medical care – but surely no one thinks the adjustment will be straightforward. The solution may be within the politicians' grasps, but our political system is not always as adept as it might be at dealing with long-term issues.

The other addition I would make to the list is really an extension of the above point. For the last week, I have been telling my classes that the next major policy debate in Canada will centre on reform of the entire range of social programs. The free-trade debate illustrated how immensely popular these measures are. Yet, any simple projection suggests that we cannot go on providing the level and quality of coverage without a substantial increase in taxes or charges. Social programs are not safe, as the more enthusiastic defenders of the trade arrangement so baldly assured the electorate, although they were certainly correct if they specified only that they were safe from the implementation and operation of the accord. Some day soon, a minister of finance will have to lay out the choices – substantial tax increases or social programs that are more targeted, less generous, and involve some element of co-insurance. Anyone who thinks this will be easy has only to remember Michael Wilson's first attempt to de-index old age pensions early in the Conservative's first mandate.

Industrial Structure in the Next Century

Mr. Côté discusses four separate topics in this section, but they really can be cast together as one; does Canada need an industrial strategy, and do the provinces individually? The usual reasons advanced for a national strategy are that we cannot remain prosperous as hewers of wood and drawers of water, that our manufacturing sector is dominated by small, inefficient branch plants, and that (related to the point above) we do not generate enough indigenous research and development. The arguments for provincial, industrial strategies are the same, with the additional points that each region deserves a diversified economy, and that some combination of natural disadvantage and central Canadian imperialism are preventing that structure from developing unaided.

Mr. Côté's answer to these questions, not surprisingly, is no, we do not need an explicit industrial strategy. Some natural resource sectors, agriculture in particular and mining to a lesser extent, are threatened, but other important ones stand to gain from future technical and economic developments. Our market is small, but that situation will be changed by the impending free-trade agreement, and market size is not nearly as important a determinant of manufacturing productivity as it was at any rate. We may not produce much technology, but we do assimilate it relatively quickly. Attempts to diversify regionally are almost certain to fail and are not necessary at any rate since we have an admirable compensation system in place.

This is not the place to go into the details of the industrial strategy debate. Certainly it is easy enough to quibble with individual points that Mr. Côté raises. Having been involved at the Macdonald Commission in the exercise of attempting to determine the future of individual resource sectors, I admire Mr. Côté's courage in making such bold predictions, but must point out that I could line up an equally impressive list of references to support precisely the opposite conclusion in each individual case. Even if he is correct with respect to agriculture, it is surely a little optimistic to think that that sector's political influence will wane much even as its numbers decline, so that adjustment will be easier. For reasons that have always escaped me, farm interests exercise political clout far in excess of what their numbers should imply. Anyone doubting this for Canada need only read the agricultural provisions of the imminent free-trade agreement.

Generally, however, I continue to be persuaded along with the author that an explicitly interventionist industrial strategy is not necessary, and may even be positively harmful. That does not mean we shall not get one, however, or rather up to 11 of them. This is another area where I think Mr. Côté underestimates the political side of his framework.

Conclusion

In closing, I should like to thank the Council for the opportunity to be part of this interesting and important symposium, and to once again congratulate Marcel Côté for his contribution to it.

6 Distributional Issues and the Future of the Welfare State

Lars Osberg

Any discussion of distributional issues must begin by defining: "distribution of what?," "distribution among whom?," and "distribution how measured?" Given answers to these queries, one often hears the practical question "but what should we *do* about it?" Since there is more than one answer to each of these questions, this essay presents not one but two "visions" of the future and discusses the choice between these visions.

In one perspective, all distributional issues boil down to a single crucial issue, the distribution of lifetime income among individuals. In this view, the crucial issue for policy purposes is the total lifetime income received by the poor, or the rich, from which individuals will allocate their expenditures. Those averse to risk will purchase insurance, those who wish to consume in their old age will save for their retirement, and those who wish to leave something for the next generation will include a bequest in their plans. If informed, utility-maximizing individuals face competitive markets in an economy which grows steadily along a known turnpike growth path and which has complete markets in all commodities (e.g., future markets), then it will be feasible for individuals to allocate optimally their expenditures. In this vision of how an economy functions, *the* distributional issue is the distribution of lifetime income, and *the* equity issue is how much governments should intervene to redistribute income to the lifetime income poor.

However, in a second vision of the economy, distribution is a more complex issue. If growth in modern capitalist economies is Schumpeterian characterized by a series of technological innovations, shifts in trade patterns, and the unpredictable rise and decline of industrial sectors, then individuals will face great uncertainty in their future incomes. If financial markets are incomplete (e.g., in commodity futures) or very costly (e.g., annuities), individuals will find it difficult to insure privately against the risks of structural change. If the macroeconomy is characterized by cyclical instability and labour markets are often imperfect, involuntary unemployment may create inequalities in access to employment.

In this second perspective, one cannot reduce all distributional issues to a single issue, since expectations of the future are subject to great uncertainty. This perspective therefore addresses a number of issues whose importance depends on the problem at hand. For the classical economists such as Ricardo, the "principle problem of political economy" is the distribution of income between labour and capital. However, political debates in Canada have traditionally been very sensitive to interregional inequalities in average income levels, unemployment rates, and economic growth, as well as to the distribution of income between social classes. The distribution of wages and employment opportunities among individuals is the focus of anti-discrimination legislation, while the distribution of total income among families and the prevention of poverty are the focus of much social policy. Certainly the distribution of lifetime income is an important concept, but in a world of uncertain incomes and imperfect capital markets, distribution over the life cycle, between older and younger workers and between the dependent and the working generations, is also very important. Finally, environmentalists have argued that our policies should consider the needs of future generations, in addition to those of the current generation.

Since discussion of future trends must start from somewhere, the first section of this essay, "The Point of Departure – Canada in the 1980s," adopts the second perspective and describes briefly the state of the Canadian economy in the late 1980s, with reference to the various dimensions of income distribution – between labour and capital, between regions, between individuals and/or families, between phases of the life cycle, and between different generations. The section "Forces for Change" then outlines the distributional implications of some predictable forces for change in the Canadian economy – technology, increasing international trade, demographic shifts, and environmental pressures.

There is very little that Canadian governments can do about these forces for change in the Canadian economy, but we do have choices to make in how Canada adapts to change. In the 1950s and 1960s, Canadian policy on distributional issues was formed within a broad vision of a

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I would like to thank M. Bradfield, S. Phipps, A. Sharpe, and M. Wolfson for their comments on an earlier draft. Errors remaining are my sole responsibility.

mixed capitalist society with an activist government and a redistributive (and generally expanding) welfare state. The 1970s and 1980s have seen increased emphasis on a strategy of "providing a framework of price stability, reducing government spending and deficits, and improving incentives for the efficient allocation of resources" [IMF, 1988, p. 24]. The section "Visions of Canada" therefore presents two alternative "visions" of the future of the welfare state in Canada, with differing interpretations of existing events, differing predictions for the future, and different policy prescriptions. The section "Issues of Disagreement" concludes with a discussion of the issues of fact and values which we need to resolve if we are to choose intelligently between these alternative visions.

The Point of Departure – Canada in the 1980s

From the perspective of classical political economy, one would stress the fact that in recent years the distribution of national income between labour and capital has shifted in favour of capital. In 1970, labour's share of national income was 72.6 per cent; in 1980, it was 69.4 per cent; and in 1987, 69.0 per cent. Since 1980, the level of real wages in Canada has fallen – a trend that has been particularly evident in the years following the 1981-82 recession.

Falling real wages are what one would expect to observe in a period when the supply of labour exceeds the demand for it – and an excess supply of labour has been characteristic of Canadian labour markets throughout the 1980s [Morrissette and Solvas-Bronsard, 1988; and Kapsalis, 1988]. The severity of the 1981-82 recession was unprecedented in the postwar period and recovery has been slow.[1] As many commentators have noted [e.g., Lipsey, 1984], the 1981-82 recession was "policy-induced," and since the enormous costs of the 1981-82 recession were incurred in order to bring inflation under control, monetary and fiscal authorities have been extremely wary of rekindling the fires of inflation. Even in June 1988, the percentage of the working-age population in full-time employment in Canada had not yet recovered to the level of August 1981.[2] Notwithstanding a national unemployment rate of 7.8 per cent for the first three quarters, in 1988 macroeconomic policy was restrictive.

Higher unemployment rates in the 1980s have affected the inequality of earnings among workers as well as the distribution of national income between labour and capital. Dooley [1987] has argued that inequality in annual earnings among cohorts of Canadian males of similar age and education increased over the 1970s, reflecting the increased variation in weeks and hours of work brought about by rising joblessness. Unlike the United States, in Canadian data there is no evidence of secular growth in earnings inequality within cohorts, *if* one controls for the unemployment rate. However, in Canada, the United States, and the United Kingdom, there is strong evidence that higher unemployment is associated with greater inequality in earnings and family income, both between and within cohorts [Dooley, 1987; Blank and Blinder, 1986; and Nolan, 1987].

Over the 1980s, access to employment has become more unequally distributed in Canada. The incidence of long duration unemployment has increased (although not to the extent found in European countries) and has spread west from Atlantic Canada to become a feature of the labour markets of Northern Ontario/Quebec, the Prairies, and British Columbia. Since recovery has been centred in Southern Ontario, regional disparities in unemployment have increased considerably – in 1979 the unemployment rate of Newfoundland was 3.1 times that of Toronto, but in 1987 it was 4.1 times as high.[3]

However, high unemployment rates have now become characteristic of Northern Ontario/Quebec, the Prairies, and interior British Columbia – as well as Atlantic Canada. Indeed, since 1981, the unemployment rate in Halifax has been substantially less than that in Vancouver (in 1987, 8.9 per cent in Halifax and 11.4 per cent in Vancouver). The "Atlantic syndrome" of depressed local labour markets and dependence on unemployment insurance has become, in the 1980s, a general characteristic of much of Canada's resource hinterland.

Petroleum, potash, and grain in the Prairies, like timber and mining in British Columbia and Northern Ontario/Quebec, have considerably decreased employment. Between 1981 and 1986, employment in natural resource-based industries in Canada shrank by roughly one fifth.[4] Since this has traditionally been a relatively high-wage sector in Canada, the disappearance of these well-paid blue-collar jobs affects both the aggregate national distribution of income and the regional distribution of employment opportunities. Over the same period, employment in service industries grew from 66.1 per cent of full-time equivalent jobs to 70 per cent, twice the rate of growth of service sector jobs in the 1970s. Job creation in the service sector has accounted for all the employment growth of the 1980s – between 1980 and 1987 employment in the goods sector fell by 0.5 per cent.

Since service-sector growth has been concentrated at opposite ends of the spectrum of wages – in personal service and retail sales jobs and in the professional/technical/managerial occupations – there has been an increasing concern with possible polarization in the distribution of earnings. If relatively highly paid blue-collar jobs are disappearing, while the new jobs being created are either in the low-skilled, low-credential sector or in highly paid professional occupations, then the adjustment problems of displaced workers (especially older workers with poorer education) are likely to be severe. Inequality of opportunity is likely to become even more closely tied to the inequalities of the school system and inequalities of income are likely to increase.

However, the debate on whether there has been a general "disappearance" of middle-class jobs is still inconclusive. Leckie [1988] examines trends in the share of *earnings* going to the middle third of the Canadian population, as well as trends in the aggregate inequality of earnings, over the period 1971-84. He concludes that there has been little change in aggregate earnings inequality, because changes in sex, age, education, part-time/full-time status, industry, and occupation of the labour force have largely balanced out. Although this aggregate picture of balancing changes is cold comfort to those who face personally the costs of such changes (e.g., the laid-off steel worker who is now working at McDonald's), this analysis argues there is little structural trend to increased earnings inequality in Canada.

On the other hand, Myles, et al. [1988] argue that : 1) a middle-class job should be thought of in terms of hourly wages, not earnings, since the distribution of hours worked may change over time; 2) the idea of "middle class" is best captured by examining the proportion of workers with jobs whose wages are close to the median rather than aggregate inequality; and 3) the pace of structural change in Canada has accelerated considerably in the early 1980s, relative to previous decades. These authors find qualified support for the idea of an increasing differentiation of the labour force due to shifts in the distribution of wages paid to different age groups (shifts in the occupation/industry structure have balancing impacts on the wage distribution). In the early 1980s, it was more common in the United States than in Canada to see explicit "two-tiered" wage structures with lower wages for new entrants. However, in both countries high unemployment has depressed entry-level wages, accentuating inequality in earnings between younger and older workers.

American studies, as those in Canada, do not reveal a consensus on the "disappearance" of middle-class jobs. As always, slightly different questions generate slightly different answers – and researchers have asked a variety of questions of the data. Although there is general agreement that trends in the distribution of earnings and wages in the 1980s have been shaped by *both* accelerating secular trends and an exceptionally severe business cycle, the relative importance of each is hotly debated.

In examining distributional trends, sociologists have tended to emphasize individual wages and earnings due to their importance for relative social status and social cohesion. Economists, on the other hand, have traditionally tended to emphasize family income due to its importance for personal consumption. Trends in the distribution of family income can be quite different from trends in the distribution of individual earnings, since family income is greatly affected by trends in family composition (especially in divorce and household formation), trends in labour force participation (especially increased female and youth labour force participation), changes in transfer payments, and movements in the distribution and magnitude of capital income. Although there has been substantial variation in all of these, Wolfson [1986] argues that their effects on the aggregate inequality of family income have been offsetting – at least for the period 1965-83.

In the 1970s, the Canadian labour force grew by 38 per cent (the most rapid rate of increase in the western world) as female labour force participation rates increased and as the postwar baby-boom generation entered the Canadian labour market. For the decade of the 1980s, labour force increase is expected to be less than half as great (approximately 16 per cent), and the 1990s will likely see a further slowing in labour force growth to about 10 per cent [Seward, 1987]. Since the baby-boom generation has been the best educated cohort to enter the labour force in Canadian history, their movement into the peak earning years of the life cycle creates some tendency to a shrinkage in aggregate disparities in annual earnings. At the same time, however, the relative wages of younger workers have been declining during the 1980s [Myles, 1988], implying a tendency to greater inequality in annual earnings.

Over the 1980s, the incidence of poverty has risen and fallen in parallel with the rate of unemployment, increasing from 1981 to 1984 and decreasing gradually with the subsequent decline in unemployment rates. Indeed, for the period 1970-85, Perron and Vaillancourt [1988, p. 52] emphasize "the importance of cyclical variations in GNP in explaining variations in poverty rates." However, an enduring legacy of the recession has been an increase in social assistance case loads and the increasing percentage of welfare recipients deemed to be employable.[5] The social assistance system, however, generally does not reach the working poor (less than 10 per cent of whom receive supplementary welfare payments) and the majority (55 per cent) of poor

Canadian families have a family head with at least some labour force participation in the previous year. Indeed, roughly one quarter of poor Canadian families had, in 1985, a family head who worked full-time, full-year [Statistics Canada, Cat. 13-207, annual].

The high incidence of poverty among groups such as single parents or native Indian/Inuit Canadians and the increasing size of these groups, imply that their poverty is fairly visible to the politic body. The low wages and unemployment of the working poor are less visibly evident as causes of poverty, but their effect spreads over more families. Least visible of all are the functionally illiterate of Canada, whom the Southam Literacy Study [Southam News, 1987] estimated to comprise 24 per cent of the adult Canadian population in 1987.

In all these distributional issues, the Canadian state intervenes on a massive scale. Macroeconomic policy is a crucial determinant of the aggregate demand for labour and, therefore, of unemployment and the trend of real wages and returns to capital – which returns are deferentially treated by the tax system. Macroeconomic policy, especially exchange rate policy, also impinges deferentially on Canada's economic regions. The interregional distribution of employment opportunities and income is affected indirectly by macro policy and directly by regional development incentives, equalization payments to the provinces, and the substantial interregional transfers which are built into programs such as unemployment insurance.

Canadian governments alter the distribution of annual income between families through transfer payments, whose magnitude has grown from 1.8 per cent of personal income in 1947 to 11.7 per cent in 1966 and 14.3 per cent in 1986. Government attempts to influence directly the distribution of wages and earnings among individuals through minimum wage legislation and antidiscrimination policies such as "equal pay for work of equal value." Government redistributes income between generations and between different years of the same person's life, in a very visible way, through programs such as the Canada Pension Plan and Old Age Security. Much less visibly, the "hidden welfare state" of government tax expenditures redistributes income to favoured classes of individuals and corporations. With programs such as Medicare and unemployment insurance, the state redistributes the costs of contingencies such as illness or unemployment. Training programs, mobility grants, and subsidies to education attempt to influence the distribution of human capital among persons.

The short name for this blur of policies, programs, and legislation is "the welfare state." Over the 1980s, there has been an ongoing debate on whether it is cause or cure for the ailments which it addresses. Certainly transfer payments have grown in aggregate volume, but cutbacks in transfer programs have often been advocated, both from the perspective that the welfare state may have created disincentives to the efficient operation of market forces and in order to reduce the financial deficit of the federal government.

However, from the left the welfare state has been criticized because its expansion over the postwar period in Canada has been accompanied by remarkable stability in the distribution of annual income among family units. In part, the stability of the income distribution arises from its susceptibility to so many conflicting social trends. In part, the limited impact of the state in decreasing inequality of annual income stems from the fact that most of the expenditures of the Canadian welfare state do not have this as their objective. The welfare state in Canada is dominated by "social insurance" programs such as UI or the CPP, whose objective is to redistribute risk or to even out income flows over the life cycle, *not* primarily to redistribute income from rich to poor.

Nevertheless, transfer payments do have a significant impact on poverty. Messinger and Fedyk [1988] calculate that in 1984, transfer payments filled about 70 per cent of the aggregate income gap between the low-income cutoff and pre-transfer incomes and moved about 60 per cent of the pre-transfer poor above the poverty line. The success of the Canadian welfare state is particularly evident for the elderly population – over 90 per cent of the pre-transfer elderly poor are moved above the poverty line by transfer payments. The failures of the Canadian welfare state show up, however, in the increasing incidence of poverty among Canadian children and in the stubborn persistence of regional disparities in average incomes and employment opportunities.

The controversies surrounding the welfare state stem, in part, from basic design dilemmas that have never been fully resolved – for example, the trade-off between income adequacy and the possible loss of jobs involved in setting the minimum wage, or the balance to be struck between incentives and insurance in UI or Medicare. In part, the challenges faced by the welfare state are those of the shifting relative importance of traditional issues, such as pension adequacy for senior citizens or support for single parents. However, the Canadian welfare state has also had to accommodate the issues raised by some fairly new trends, such as the labour force participation of the *majority* of the mothers of young children and the simultaneous distress of Canada's resource hinterland. And the Canadian welfare state has had to do all this during a period when the norms and values by which it is judged have been in a state of flux. It is no longer socially acceptable, as it once was, to assume that women are "secondary earners" in households; and it is increasingly difficult, politically, to argue for the use of family income as a way of differentiating the net benefits of social programs (such as UI). Given all these factors, it is easy to predict that the welfare state will remain controversial in Canada.

Forces for Change

Technological Change

Since the Industrial Revolution, capitalist societies have been characterized by continual change in technology and in the relations of production. In the 1980s, the pace of technical change accelerated, and there is no reason to doubt that this trend will continue in the 1990s. As many commentators have noted [e.g., ECC, 1987], technological change in industry has become increasingly science-driven, with an ever-closer link between basic and applied R&D. The sophistication of new technologies increasingly demands that applied technologists should have a strong background in math and science skills if they are to transfer new techniques successfully into the production environment. And the revolution in information processing technology offers the potential for major changes in office occupations, where most Canadians work.

Over half of all Canadian workers are now employed in occupations whose primary functions are the production, distribution, and analysis of information [see Osberg, 1988*b*]. Since computers also process information, and their speed, capacity, and cost is changing with dramatic rapidity, it is not difficult to predict that technological change in telecommunications and computers will have a major influence on employment in Canada over the 1990s. In particular, those jobs in information processing which are relatively routine are likely to be very heavily affected by emerging information technologies. As automatic teller machines replace bank tellers, as computerized check-outs reduce the demand for supermarket clerks, and as filing clerks lose their function in the paperless office, labour demand will shift away from occupations which handle purely routine types of informational transactions. However, the more "knowledge-based" occupations, whose work roles are less routine and less amenable to computerization, are likely to continue their trend of increasing relative importance.[6]

Although the changes required by technological forces are likely to imply substantial adjustment costs for many individuals, it is more difficult to say whether they will entail appreciable changes in the aggregate distribution of income. When one decomposes the aggregate inequality in earnings into that which is due to inequality *within* industries (or occupational categories) and that due to inequality *between* industries (or groups of occupations), one finds that most of the inequality in the distribution of earnings is accounted for by inequality *within* industries (or occupations). Indeed, the importance of such intra-group inequality is the main reason why Myles, et al. [1988] found that the substantial shifts in the industrial and occupational composition of the labour force which have occurred over the period 1981-86 have produced relatively small impacts on the aggregate distribution of wages. Indeed, even if one looks at hypothetically large future shifts in the broad structure of the labour force, such shifts produce relatively small aggregate effects on earnings inequality *if* inequality within occupational groups remains the same [Osberg, 1988*a*].

The impact of technological change on inequality *within* industries, or *within* occupations, is therefore both crucial and difficult to predict. If the graduated hierarchy of the traditional bureaucracy is replaced by new organizational structures with fewer levels of authority, then the pyramid of earnings is likely to become more unequal.[7] And, indeed, Myles, et al. [1988] found that the main factor increasing wage dispersion in Canada over the period 1981-86 was an increase in the disparity between younger and older workers *within* industries and occupations.

Rapid technological change, and the shifts in labour demand it causes, may not, therefore, produce large shifts in the aggregate distribution of earnings. However, it is likely to produce a greater "churning" within the income distribution as workers in declining occupations slip down the distribution of relative wages. Rapid technological change is likely to mean that those who can learn new skills easily can expect to do well in the labour market. Indeed, it is increasingly the norm for training to continue throughout one's work life – in 1983, one sixth of those employed full-time, full-year participated in some sort of formal training program [Picot, 1987]. Yet, as noted earlier, 24 per cent of adult Canadians (17 per cent of those aged 18 to 24)[8] are functionally illiterate, and many of the literate possess only the most rudimentary mathematics or science skills. A relatively large fraction of the Canadian population is, therefore, not well placed to cope with the rapid technological change which we can expect in the 1990s. To put it another way, technological change may not produce much change in the overall inequality of earnings, but the adjustment costs of technological change will be very unequally distributed.

International Trade

Like technological change, rising levels of international trade have long been one of the basic institutional features of the world economy. Traditionally, Canada has typified itself as a "small open economy" whose interests lie in expanding international trade and in the progressive dismantling of world trade barriers. In the 1960s, however, the competition of low-wage foreign producers in the Canadian domestic market was largely restricted to a relatively small number of sectors such as textiles, clothing, or shoes. But in the 1970s and 1980s, the nature of international competition has changed, as the newly industrializing countries of the Pacific Rim have increased their general penetration of world markets and manufactured goods. Canadian industry has found itself competing with Korean and Taiwanese firms in industries such as automobiles or consumer durables, that have traditionally provided relatively high-wage employment.

During the 1990s, it is altogether likely that the locus of low-wage international competition will change. In the same way that Japan has become a relatively high-wage location for some types of assembly operations compared to Korea or Taiwan, it is quite possible that the latter will lose their wage advantage to countries like the Philippines or China. But the uncomfortable fact of aggressive international competition in all sectors of goods production, based on wages much below those in Canada, is very unlikely to disappear.

Furthermore, the very rapid decrease in costs of telecommunications and information storage and retrieval is likely to imply increased international competition in the production and distribution of information. Historically, traditional office technology, with its predictable paper flow and need for face-to-face supervision, has required most office functions to be in the same location as key decision makers. As a result, clerical, administrative, and professional employment has been a sheltered sector, insulated from the international competition characteristic of the production of goods. But rapid declines in the costs of information transfer make this an increasingly footloose employment sector – one whose location cannot be protected by tariffs.

Nor can such employment be protected, in the future, by regulation from American competition. By the terms of the Canada-U.S. Free-Trade Agreement, Canada has bound itself to accord national treatment to service providers, thereby forswearing the possibility of preserving preferred market access for Canadian firms in the domestic production of information services. Since specialized providers of business services (e.g., corporate law firms or the designers of offshore oil rigs) depend heavily on the reputation and relationship they have built up over many years with major clients, and those clients are often U.S.-based, Canadian firms operate at a disadvantage in this sector – and it may be increasingly difficult to avoid displacement.

The free-trade agreement has been attacked by organized labour on the grounds that it will shift the balance of bargaining power in Canada in favour of capital. The fear is that increased openness of the Canadian market to competition for goods and investment from low-wage states in the United States will shift the distribution of national income and earnings against labour and depress, to the lowest common North American denominator, the "social wage" of transfer payments, government services, and income supports.

However, even with a free-trade agreement, these competitive pressures within North America will be superimposed on a long-run trend to greater global competition. And one must remember that a profit-maximizing firm is not concerned with labour cost per hour; rather it is concerned with labour cost *per unit of output*. To the extent that Canadian industry can achieve increased labour productivity, Canadian workers will be able to avoid downward pressure on their real wages and increased inequality in the distribution of income. But the general moral to be drawn is the interdependence between national policies of international trade, education and labour force adjustment, science policy, and income distribution.

The Aging Population

In attempting to improve the rate of growth of labour productivity in the 1990s, Canadian policy makers will confront some of the implications of Canada's demographically uneven population. Since it is relatively easy to change one's mind about one's career at the age of 20, the entry of the baby-boom generation into the labour force in the 1970s and early 1980s brought with it a certain "automatic" flexibility in the supply of labour to different sectors of the economy. In the 1990s, however, labour force growth will be much slower and the demographic bulge of baby boomers will be firmly in their 40s. With settled ties to local communities and with (usually) an employed spouse who may not wish to relocate, there will be much more resistance to geographic mobility than was the case in past years. Traditionally, interregional mobility has been greatest among young adults and has served to ease the pressures created by regional differentials in the rate of economic growth. As the young adult share of the population shrinks, the issue of the interregional distribution of income and employment opportunities is likely to become even more intractable than it already is.

Over the 1990s, the fraction of the population aged over 65 will increase slightly from just under 11 per cent to just over 12 per cent. In terms of numbers, this shift will be more than balanced by the decreasing fraction of the population aged under 20, hence the "dependency ratio" (the ratio of the total population to those of "working age," between 20 and 64) will fall slightly from its 1986 level of 1.65 per cent to an expected level of 1.64 per cent in the year 2001. In terms of costs, however, the elderly consume substantially more than youth do, hence the distribution of total consumption will shift slightly towards the retired population – a trend accentuated by the tendency to increasingly early retirement evident in the Canadian labour force. Over the 1990s, we can therefore expect to see increasing concern with the issues of old age security, pension indexation, guarantees of private pension plans, and funding of the public pension system, whose common denominator is the issue of an equitable distribution of consumption between generations.

Environmental Decay

The 1970s and 1980s saw an increasing level of environmental consciousness and there is no reason to doubt that this trend will also continue in the 1990s. In part, increasing concern with environmental issues arises from the perception of new, and very general, environmental issues such as the "greenhouse effect" and the consequent possibility of increasing average temperatures worldwide. As well, many well-known environmental issues have simply not been satisfactorily resolved, despite years of concern. And with all environmental hazards, one confronts the yawning gulf between ascertainable hazards, with their range of genuine scientific uncertainty, and the much greater variability of popular perceptions of hazards.

Although the acid rain, nuclear waste, and hazardous chemicals issues involve somewhat different types of environmental hazard, issues like these involve specific environmental contaminants whose impact is felt on a particular ecological system. Canadians are particularly concerned about acid rain, since we are downwind of so much of it and since forests are so important to our hinterland economies; but, in general, such hazards have their effects on definable localities and regions. Rising levels of carbon dioxide in the world's atmosphere, and the possibility of a warming of the world's climate, raise issues of an altogether different order of magnitude. If the world climate gets warmer by between 2.5 and 4.5°C over the next 40 years, the consequences for Canada's agriculture and forest-based industries will be immense. Massive investments will be required in coastal provinces to cope with rising ocean levels and the international environment will be characterized by far greater economic and political instability due to the massive effects which climate warming will have on the agriculture of Third World nations.

Environmental issues are distributional issues in the basic sense that the costs of action to deal with environmental issues are borne by the current generation while the costs of inaction will be borne by future generations. The present generation of Canadian taxpayers/consumers will be able to consume more if nothing is done to clean up hazardous chemical wastes or to decrease the consumption of hydrocarbons by Canadian society. Future generations will, however, pay a heavy price for such inaction. The attention we pay to environmental issues is, therefore, another dimension to the basic issue of the appropriate distribution of potential consumption between generations.

Predictable Problems

Economic policy makers have always faced the problems of balancing their concerns with inflation and unemployment and of finding a way to achieve an equitable distribution of rising real incomes. As we have already noted, these issues are intimately interconnected, since both the inequality of earnings and the rate of growth of real incomes are heavily affected by the rate of unemployment. The inequality of family incomes is, of course, also heavily influenced by government taxation and transfer policies. In a global environment characterized by rapid technical change and an ever-increasing exposure of Canadian employment to international competitive pressures, the achievement of rising real incomes is likely to depend on increasing our capacity for productivity improvement within firms and on a greater ability to cope with structural adjustments between firms.

Structural adjustment is, however, not likely to become easier in the coming decade. If Canada is to achieve higher rates of growth of labour productivity, we will first have to resolve the issue of the distribution of adjustment costs within the Canadian economy. The social policies of the welfare state affect both the distribution of income among persons, families, regions, and the distribution of risk which rapid change entails.

Changes in the age/wage relationship also raise the issue of equity in the distribution of earnings between different generations of the labour force, while the debate on pension policy is driven by the issue of an equitable distribution of consumption between the employed and the retired generations. Environmental issues force us to consider the implications of our current decisions for generations far into the future. Decisions of some sort on a wide range of issues – even decisions to do nothing – are inescapable. If the aggregation of such decisions is to fit together in a reasonable way, we need some sort of "vision" of the appropriate role of the state in distributional issues – a subject to which we now turn.

Visions of Canada

In thinking about the future, forecasts of where society *will be* are inevitably driven by a perception of where society *is* and an analysis of the direction in which it is currently going. A "vision" of Canadian society in the year 2000 is also, therefore, both a description of current reality and an analysis of current economic and social trends. Implicit in such an analysis is a menu of possible policy alternatives and a set of presuppositions as to their implications.

However, although the description of the Canadian economy in the first section and the outline of forces for change in the second section may command wide agreement, there is profound disagreement about how this should all be interpreted. There are many analyses of social trends and many shades of opinion, but to sharpen the discussion, this section presents two alternative visions of the future role of the welfare state. The first vision presents an interpretation of events which is consistent with much recent writing on social policy issues [e.g., Blomqvist, 1985]. The second presents an alternative interpretation of events more consistent with the postwar consensus on the welfare state. Both visions begin with a discussion of macroeconomic policy because the priority attached to full employment is central to all other distributional issues. The "visions" differ in their perception of feasible macroeconomic policy and they differ also in the relative importance which they ascribe to the social insurance and social assistance roles of the welfare state. This section ends by summarizing the issues of fact and values which differentiate these perspectives.

Over the decade of the 1950s, unemployment in Canada averaged 4.2 per cent, while the 1960s saw an average national unemployment rate of 5.0 per cent. In the 1970s, unemployment averaged 6.7 per cent and there was substantial experimentation with ways of keeping inflation under control while attempting to prevent unemployment from rising to "intolerable" levels, culminating in the controls of the Anti-Inflation Board period. However, over the period 1982-87, the national unemployment rate has averaged 10.6 per cent, as central bankers and governments in Canada, as elsewhere in the world, have decided that control of inflation is the overriding objective of macroeconomic policy and that restraint of aggregate demand is the only feasible method.

Limiting the Role of the Welfare State

The 1980s shift in emphasis in macroeconomic policy is part of a larger philosophy of limiting the role of the state in economic and social affairs. In part, the decreased importance ascribed to unemployment has been based on the conviction that a stable price level is an essential prerequisite to long-term economic growth. In part, it is also due to a reinterpretation of the nature of unemployment, which authors of academic papers on search theory, labour/leisure choice, and implicit contracts have cast in an essentially "voluntary" light [see Osberg, 1988*d*]. A downward revision in official perceptions of the social cost of unemployment and a benign view of the output costs associated with monetary restraint laid the intellectual foundation for the record-high interest rates of 1981-82 and the unexpectedly severe recession which followed. Since then, monetary authorities have laid great emphasis on microeconomic, "structural" explanations of aggregate unemployment. Despite shifts in the minimum wage, the age structure, and the union density of the labour force which would be expected to decrease the NAIRU (the rate of unemployment at which inflation can be expected to accelerate), Bank of Canada statements in 1988 indicate that it believes that the NAIRU has *risen* over the 1980s, to somewhere in the area of 8 per cent on a national basis.

A macroeconomic policy which accepts such historically high unemployment rates as unavoidable has enormous implications for distributional issues. As already noted, high unemployment produces a labour market with greater inequality in the distribution of individual annual earnings and a higher incidence of poverty among families. High unemployment also entails an increased role for transfer payments, such as UI or social assistance, in the distribution of family income and an increasing separation between employment and the distribution of consumption. Indeed, a chorus of "futurist" writings [e.g., Handy, 1985; and CEIC, 1986] have declared the obsolescence of "full employment" and the traditional full-time job.

High unemployment also increases the demands made on the services which the welfare state provides. As Ketso [1988], Stern [1983], and others have documented, for example, unemployment causes illness, whose costs are a burden to the health-care sector. While high unemployment places increasing demands on the welfare state, it also implies lower rates of growth of the aggregate output which finances the welfare state. A high unemployment economy therefore produces continual pressure to "refocus" or "reform" or otherwise reduce the programs of the welfare state. And much of this discussion emphasizes the fact that most transfer payments (57 per cent according to Messinger and Fedyk [1988]) do not go to poor families.

The social costs of transfer programs are partly composed of the administrative cost of program delivery (although these are relatively low for universal programs, such as family allowances or old age pension) and partly due to the incentives which particular conditional programs (such as UI) may create. But the cost stressed by Blomqvist [1985, p. 119] and others is the marginal excess burden of raising taxes – i.e., the value of the output lost as individuals readjust their behaviour when confronted with the higher tax rates required to finance welfare-state expenditures.[9]

If one estimates the social costs of welfare-state expenditure to be high and *if* one believes that the social insurance role of the welfare state in programs such as the Canada Pension Plan or Medicare could be adequately replaced by such substitutes as private health insurance or employer-paid pension plans, then an argument for reduction in the social insurance role of the welfare state follows. One vision of reform of the welfare state, therefore, advocates disentangling income-redistribution programs and social insurance programs. The recommended route for social insurance programs is privatization or behaviour, which mimics the private sector, such as the adoption of actuarially fair premiums or user-cost financing [e.g., Blomqvist, 1985].

Advocates of such policies feel aggrieved by the suggestion that they are advocating policies which might hurt the poor. Their language is one of greater selectivity, of improving the target efficiency of social welfare programs by a better targeting of a given volume of transfers on the "deserving poor." The implicit political hypothesis is that the same, or more, resources would be available to programs clearly labelled "for poor people only" as now actually gets to the poor via more general programs.

In this vision of a reduced, more closely focused welfare state, the redistributional policy usually suggested is some variant of a two-tiered negative income-tax scheme. The Lalonde proposals of the early 1970s and the Universal Income Security Plan (UISP) advocated by the Macdonald Commission in the early 1980s had in common the idea that much of the expenditure now absorbed by income support programs could be rolled into a negative income-tax scheme, in which unemployable recipients qualify for a high basic guarantee level, coupled with a relatively high rate of taxation on earnings, while employable participants receive a relatively low basic guarantee level, combined with a lower rate of taxation on additional earnings. This program design is motivated by recognition of the trade-off between the guarantee level for basic income support and the tax rate on additional earnings which is inherent in all negative income-tax programs. Setting a low basic guarantee level for employables implies that those who have to depend on it alone will live in poverty, but this is combined with a relatively low tax-back rate on earnings, in order to preserve incentives to accept employment – on the presumption that employment is available.

This vision of the future generally takes as given a monetary policy oriented to the control of inflation and a fiscal policy whose objective is a gradual decrease in the federal deficit. Hence there is no appeal to stimulative aggregate-demand policy to justify the assumption that employment opportunities are available. Rather the emphasis is on reducing the influence of policies which are seen as decreasing the demand for labour by firms at the micro level, such as minimum wages or payroll taxation. There is little sympathy here for the union movement, or for legislation which constrains firm behaviour on such issues as layoffs or severance pay. And although a limited role for government is seen in retraining and mobility assistance, the presumption is that government can best stimulate the effective supply of labour by reducing the disincentives to labour supply implicit in particular programs – e.g., in the so-called "welfare trap" created by high rates of benefit reduction for those social assistance recipients who accept employment [Fortin and Rousseau, 1985; and Fortin, 1987].

From a bureaucratic point of view, one of the main advantages of this vision is tidiness. Each individual bureaucracy can proceed in isolation. The Bank of Canada is to concentrate on the control of inflation while the Department of Finance focuses on deficit reduction and simplicity and horizontal equity in the tax system. External Affairs Canada takes care of trade, while the role of Employment and Immigration Canada is to assist, to a limited degree, in human-capital augmentation and labour market mobility. Subsidy programs to regional employment are to disappear, as far as is politically feasible. While everyone else concentrates on economic efficiency, Health and Welfare Canada is to take care of equity, through a negative income tax. Social insurance programs (Medicare, UI, CPP, or Workers' Compensation) may not be formally privatized, but they should behave as much as possible as if they were, and finance themselves by actuarially fair premiums or by user-pay charges. The important question, of course, is whether such a tidy blueprint for the future will generate better results.

The Welfare State and the Social Contract

Although unemployment has increased in the 1980s in all the OECD nations, it remains very low in some. In 1986, when Canadian unemployment averaged 9.5 per cent, Austria had an unemployment rate of 3.1 per cent, Norway's was 1.9 per cent, and Sweden's was 2.7 per cent.[10] These same countries are characterized by lower levels of inequality in the distribution of income and sharply lower rates of poverty, however one chooses to measure these concepts [Sawyer, 1976; Smeeding, et al., 1985]. With rates of growth of income and labour productivity at least as great as Canada's, these small open economies are case studies in the proposition that it *is* possible to do things differently.

These national economies are also examples of a broader conception of the welfare state. In them, the welfare state is only partially concerned with redistribution of money income between those who are rich and those who are poor in a lifetime income sense. The provision of common public services outside the marketplace is an important theme, and income is redistributed over the life cycle and between different cohorts of individuals to ensure that different generations of individuals keep pace, on average, with contemporary standards of living. Within this framework, there is also a very substantial degree of risk-pooling in which the state absorbs much of the cost of contingencies such as unemployment or illness.

The political conception underlying this vision of the welfare state is that of a "community." As Tawney [1952, p. 43] put it:

> What a community requires, as the word itself suggests, is a common culture, because, without it, it is not a community at all. . . . But a common culture cannot be created merely by desiring it. It must rest upon practical foundations of social organization. It is incompatible with the existence of sharp contrasts between the economic standards and educational opportunities of different classes, for such contrasts have as their result not a common culture, but servility or resentment, on the one hand, and patronage or arrogance, on the other. It involves, in short, a large measure of economic equality – not necessarily in the sense of an identical level of pecuniary incomes, but of equality of environment, of access to education and the means of civilization, of security and independence, and of the social consideration which equality in these matters usually carries with it.

The economic rationale for fostering a sense of community is that of coalition formation, or what athletic types know as "team building." In a rapidly changing world, individuals at the micro level, or relatively small groups at the national level, may find themselves threatened by change and possessed of some power to impede it.[11] If individuals must bear all the costs of change, yet have, in practice, some power to impede change, it may be in their immediate self-interest to block change to the maximum extent feasible. But if everyone acts only in their immediate self-interest, societally desirable change will be impeded. By offering something to just about everybody, the welfare state embodies a social contract which says that, since economic adjustment is socially necessary, adjustment costs will be socially shared.

This vision does not, therefore, see the problem facing the welfare state as one of "adjustment versus security" [Courchene, 1987, p. 20]. Given that individuals want security, the issue is rather how they are going to try to get it. If the costs of change, to an individual, are large, then individuals achieve security by avoiding change, to the maximum extent feasible – for example, by quiet non-cooperation in the implementation of new technology within firms or by assiduous use of the political mechanism to prevent the demise of firms. The fact that such behaviour imposes costs on the larger society is not part of any individual's calculation. The strategy underlying the broader view of the welfare state, however, is to offer a social contract in which everyone expects continuous change, but also expects that the costs of change borne by any individual at any given time will be relatively small.

Myles [1988], however, distinguishes between welfare states with a commitment to full employment, such as Sweden, Norway, or Austria and the "stop/go" welfare state of countries such as Canada, where the state has historically been willing to use unemployment as a device to contain wage increases. Full employment[12] aggregate demand policies are crucial because they create the fiscal dividend which eases the financing of income-redistribution programs, and because they imply that there are always jobs available for those displaced by change. In a full employment environment, employable individuals are not generally dependent on transfer payments, hence social insurance programs (such as UI) do not mutate, *de facto*, into income maintenance programs. Full employment is, therefore, a crucial ingredient in the traditional welfare state – and the achievement of full employment without price inflation is its most severe test. Over long periods, this system has succeeded in offering labour full employment and a rising social wage in return for wage restraint and institutionalized wage setting – but the bargain is not easy or automatic.

Redistribution of income between cohorts of individuals, or over the individual life cycle and the replacement of income lost under specified contingencies, is generally termed the "social insurance" role of the welfare state. Redistribution of income between those who are rich and those who are poor in expected lifetime family income is generally labelled the "social assistance" role of the welfare state. Within the broad conception of the welfare state there is continual debate over the relative size of social assistance programs and over the details of social insurance programs (such as the income ceiling on CPP coverage) whose implication may be to favour, or to disadvantage, the lifetime income poor. But this view of the welfare state does not attempt rigorously to disentangle the insurance and income redistribution functions of the welfare state, precisely because the idea of community at which it aims requires that it offer something for almost everybody. Furthermore, in this perspective, there is no reluctance to offer some services as in-kind benefits to all citizens – in part because it is common shared experiences (as in the public school system) which help to define a community.

Analysts of the welfare state such as Rainwater, et al. [1986, p. 200] do not think it to be an accident that poverty and inequality are notably greater in the United States than in Sweden, despite the fact that "target efficiency" (the percentage of all transfer payments received by poor families) is considerably greater in the United States than in Sweden, due to the much greater relative importance of Swedish social insurance programs. They argue that it is precisely where the poor benefit from a variety of programs in which the non-poor also share (from subsidized day-care and mass transit to family allowances and unemployment insurance) that pre-transfer income differentials are lower and aggregate transfers to the poor are greater. Wilson [1987, p. 155] has likewise argued that the agenda for the liberals in the United States is "to improve the life chances of truly disadvantaged groups such as the ghetto underclass by emphasizing programs to which the more advantaged groups of all races and class backgrounds can positively relate."

Periods of substantial expansion of the welfare state (e.g., the 1930s and 1960s in the United States or the late 1940s in the United Kingdom)[13] have often been periods when the institutions of capitalism were under severe scrutiny. In this environment, the welfare state was not necessarily loved by capitalists, but it was preferable to more extreme alternatives. Furthermore, the social democratic welfare state, with its emphasis on full-employment aggregate demand policies and activist manpower retraining and relocation programs, offered business relative stability in the demand for output and a skilled, adaptable labour force. With a large (but limited) role for government and a productive (but acquiescent) labour force, business has been able to make money securely in the modern welfare state. Government has also shared in the risks of doing business with tax expenditures, concessionary financing, and grants for specific projects, from Hibernia Oil in the East to Northeast B.C. Coal in the West. In short, when one thinks of revisions to the social contract which the welfare state embodies, one should not forget that the welfare state offered something to business too.

Of course, even within a given country, the social contract of the welfare state is ambiguous, unwritten, and subject to a range of interpretations. It also differs appreciably between countries. Part of the bargain of full employment is acceptance of wage restraint and a probability of relocation and/or retraining, but in some countries (e.g., Sweden) relocation is far more socially acceptable than in others (e.g., Norway). Moreover, the idea that insecure people tend to resist change is not unique to the welfare state. Where the welfare state is small, a roughly similar deal appears to be considered desirable by large organizations, such as IBM or the Zaibatsu of Japan, which need to adapt quickly to unpredictable changes in technology and trade patterns. In these examples of "corporate welfarism," the organization offers job security, good pay, and fair treatment; and workers respond with loyalty, adaptability, and effort.

However, the feasibility of what the labour economics literature calls a "primary labour market" strategy depends on whether the corporation can cope with change through internal reallocation of labour alone. When change is more rapid than the organization's ability to adapt, corporate welfarism cannot honour its promises. As ex-employees of companies such as U.S. Steel can attest, the moderately affluent can become the lifetime poor, where the welfare state is limited in extent.

Moreover, national societies are far more complex than even the largest corporation and, as a consequence, the welfare state is more extensive than its corporate alternatives. To make the deal work, the welfare state must be consistent with a widely accepted ethical framework, hence "fairness" is a central concern. But what is a "fair" system? Rawls [1971] argues (as do many explicitly religious statements [e.g., the Canadian Conference of Catholic Bishops, 1982]), that if we did not know how fate would treat us, we would want social arrangements that ensured that the worst case we might experience would not be too awful. A fair society is, by these conceptions, one which maximizes the well-being of those who otherwise would have the lowest lifetime income. We already know how luck turned out in the accident of our own births, but a fair-minded person will admit its role and will argue for some redistribution by the state to ensure against the poverty that bad luck at birth would otherwise entail.

But justice is a concept with more than one dimension and the Rawls criterion is only part of what most people think of as "fairness." Nozick [1974] emphasizes the point that it is "unfair" to deprive individuals of what they have legitimately acquired. In a static or a perfectly foreseeable world, this might not happen, but in a rapidly changing world accidents happen all the time. We do not know, and cannot predict, how the accidents of technological change or trade dislocations or environmental hazard will impinge on us personally – and private insurance markets in these risks do not exist. Hence the welfare state tries to generate a "fair" set of outcomes over a wide range of interrelated issues, with no very clear dividing line between those hazards whose remedies are labelled "redistributional" and those with remedies labelled "insurance."

For many proponents of the welfare state, the ideal of community is an objective worth striving for, in itself. For the more economically oriented, it is an instrumental objective, whose value is that it creates the possibility of cooperative behaviour and a reduction in the obstructionism that might otherwise impede technical and structural change. Although few proponents would disagree that the welfare state may create regulations and disincentives that have economic costs, they would argue that the static allocative costs of sub-optimal price incentives are typically small relative to the cumulative output losses associated with high unemployment and low rates of increase of labour productivity.

For proponents of this view, a return to full employment requires both political will and institutional change. Political will is required because the generals of the war against inflation, like all generals, are ever-prone to want to take "one more hill" and to refight the last war – but a goal of zero price inflation promises war without end [see Crow, 1988]. Institutional change is required because the costs of maintaining enough excess capacity in the economic system to prevent price inflation are simply too high. After the experience of the 1970s, few would argue that consultation, controls or co-determination are costless methods of limiting wage and price inflation, but many would argue that there has to be a cheaper way than the billions of dollars of lost output, which are the costs of a policy of aggregate-demand restraint.[14]

Within this vision of the welfare state, there is continuous debate over the balance to be struck between distributional issues. Over time, the relative importance of distributional issues changes as society itself changes. It has always been the case that old age, disability, or single-parent status increases one's chances of poverty, but programs aimed at these issues acquire more urgency as their fraction of the population increases. As the average age of the population increases, the benefits of the pension system produce an increasing financial pressure on the welfare state and, to the extent that the welfare state attempts to deliver "people-oriented" services whose productivity is difficult to increase, it is exposed to the problem of increasing relative costs raised by Baumol [1967]. The welfare state will therefore always have to face choices in where to allocate resources, and such choices are not made easier by the moving targets which modern social values present.

Since, in practice, many distributional issues must be solved simultaneously, the continual redesign of the modern welfare state is not a trivial problem. The notion of "equity" in the solution of each issue, and the balance between issues, is central to the idea of community at which the welfare state aims. This section has also tried to argue that it can be an efficient adaptation to the world of rapid structural change which we now face. Indeed, the need for structural change is a major motivation for the general risk-pooling of the welfare state, and the difficulty of predicting lifetime incomes in an uncertain world is a major motivation for its refusal to draw a clear line between its "social assistance" and "social insurance" roles.[15]

Issues of Disagreement

The idea of "visions" of the future implies some projection of a direction of change and a coherent image of that change. In order to sharpen the discussion, this essay has distinguished two "visions" of the future welfare state, but one must recognize that changes in the welfare state occur slowly at the margins. Even with three terms in office, the Thatcher administration in the United Kingdom has still left many of the structures of the welfare state in place. Despite a clear ideological stance, the buffer of North Sea oil revenues and a parliamentary majority in a unitary state with no written constitution, the welfare state has been amended, not abolished. In Canada, the necessity for provincial agreement imposes much greater constraints on reform of the welfare state, even for the most determined federal government.[16] Reform of the welfare state will, therefore, necessarily be incremental – but the direction of change is still important.

The structure of this essay presumes that discussion of the amount and type of redistribution in modern capitalist societies is basically a discussion of "whither the welfare state?" The vision outlined in the section "Limiting the Role of the Welfare State" argues that issues of redistribution from the lifetime-income rich to the lifetime-income poor can and should be separated from other distributional issues. The argument of the section "The Welfare State and the Social Contract" is that attempts to disentangle the components of the welfare state will unravel the social contract which the welfare state embodies. The disagreements between these viewpoints are many, but four particularly important issues are: 1) the relationship between unemployment and inflation; 2) the size of the public sector; 3) the importance of the incentive structure of social welfare programs; and 4) the problem of policy coordination. It would be nice if each of these issues could be settled by appeal to dispassionate research, but such research is rendered more difficult by the intertwining of these issues with each other and with basic issues of values.

In macro policy, there is always a debate on the relative cost in the short run of inflation and unemployment and some technical disagreement on the level of unemployment which is consistent in the long run with a stable rate of price inflation. Those who believe that the costs of inflation are high and the NAIRU is around 8 per cent will see current macroeconomic policy as appropriate, but those who think that unemployment is very costly and the NAIRU is around 6 per cent will argue that current macroeconomic policy is stupidly misguided, *even with our present labour market institutions.*

However, the more important question for the long term is whether institutional change can produce a more appetizing choice between inflation and unemployment. Proponents of Vision I tend to argue that the NAIRU can only be reduced if the skills of the work force are enhanced or if labour market flexibility is improved. Proponents of Vision II believe, however, that in a high-unemployment labour market, training programs tend to be ineffective and workers try to avoid the risks associated with job change, hence strong labour market demand is a precondition for the structural changes which can improve the inflation/unemployment trade-off. Since structural changes in the labour market occur fairly slowly, an emphasis on full employment runs the risk of sparking a short-run rise in inflation, but advocates of Vision II are quite willing to contemplate the use of selective wage and price controls to prevent inflation from accelerating during the period it takes for structural change to occur.

These two visions of the welfare state differ, therefore, on the issue of whether activist manpower policies, such as retraining or assistance for job search or relocation, should be complementary to high aggregate demand policies or substitutes for stimulative macro policy. And there is an important issue of fact separating these two visions of distributional issues – the hypothesis that the only way Canada can achieve satisfactory performance with respect to price inflation is by tolerating perpetually high unemployment.

The second set of factual issues which separates adherents to these two visions is the question of the responsiveness of individuals to the incentive structures of social welfare programs. Proponents of the welfare state tend to downplay the incentive effects of particular social programs, but critics have long voiced the suspicion that ingrates might "work the system" (see report of the Poor Law Commissioners, 1834). The 1970s' discussion of the problem of "moral hazard" in social insurance was not, therefore, new. Nevertheless, the debate on incentives is so intertwined with larger visions of the economy as to be almost intractable.

Analysis of unemployment insurance provides an example. If one views unemployment as primarily involuntary, then the UI system represents a form of compensation for the risks of structural change and for the failures of macro demand policy (which is seen as the main determinant of aggregate unemployment). If unemployment is sometimes voluntary, then unemployment insurance may create incentives to longer durations of unemployment spells, hence higher aggregate rates of unemployment. The debate on whether, in fact, UI benefits have significant impacts on the incidence or duration of unemployment is, on one level, an example of the uncertainty surrounding econometric estimates of behavioural response – one can contrast the certainty expressed by Cousineau [1985] with the skepticism of Atkinson, et al. [1984] and the agnosticism of Ham and Rea [1987]. On another level, however, the debate on unemployment insurance quickly becomes a far broader debate about the nature of unemployment itself and the appropriate degree of generosity for social insurance programs.[17]

The debate on the marginal welfare cost of taxation depends crucially on a few key empirical parameters, notably those concerning the supply of labour. And the econometric debates on the magnitude of the compensated elasticity of labour supply have created a mini industry which analyses male and female behaviour (singly and within households of different types), with and without stable preferences (over one year or over a lifetime), in labour markets with nonlinear tax structures where individual labour supply may (or may not) be quantity constrained. But the subtleties and uncertainties of econometric estimates of labour supply do not penetrate very far into the debate on marginal welfare costs, which is really a modern version of the old issue "how large should the public sector be?"

Values are, therefore, crucial in this debate and values are crucial, in a different sense, in the problem of policy coordination. The vision of the welfare state as embodying the social contract of a national community entails an untidy balancing of "economic" and "social" concerns, of "insurance" and "redistribution" functions. Policy concerning day-care must, for example, be framed with an eye to the distribution of financing between rich and poor parents and the distribution of the benefits/costs of program quality between children and taxpayers. It must also consider the efficiency with which it frees up mothers' labour for employment and reduces the need of single parents to depend on transfer payments, as well as the social desirability of its impact on family life. The more limited version of the welfare state is much simpler to administer. Since a negative income tax is presumed to take care of distributional issues, the framers of day-care policy need only consider which program design generates the most day-care spaces at the least financial cost to government.

Coordination between bureaucracies in program design is, therefore, massively simplified in the more limited welfare state – a considerable advantage. The broader vision of the welfare state requires a high degree of policy coordination, which is far more difficult if a consensus does not in fact exist on the desirable future form of the welfare state. And to take a specific, crucial issue, the two visions of the welfare state differ fundamentally in the role which they envision for organized labour. For proponents of the more limited view of the welfare state, unions may have a limited role in the workplace, but the views of organized labour on macroeconomic policy or the design of the welfare state do not count for much. Proponents of the broader view argue, however, that it is stupid to ignore the opinions of the workers who are supposed to implement change and that organized labour legitimately represents their interests.

This essay rejects the view that there is only one possible future evolution of the welfare state.[18] Indeed, it has presented not one, but two visions of distributional issues in Canada in the year 2000, and the choice between the two is clearly important.

In one vision, despair over alternative methods of controlling price inflation produces a policy decision to tolerate high unemployment for the indefinite future. Lower rates of output growth magnify existing pressures on the financing of the welfare state, which progressively retreats from its insurance functions. In an increasingly insecure environment, individuals try to minimize the probability that they personally will have to face the adjustment costs of a changing society, which in turn decreases the rate of growth of labour productivity. The labour movement is under continual pressure to defend its existence and the industrial relations system is typified by a continual conflict over job security and technological change. Individual bureaucracies myopically pursue cost effectiveness and, in a general atmosphere of "things we cannot afford," income redistribution programs do not escape. In this picture, there is an increasing separation between the employed and the transfer dependent, and increased inequality in individual earnings, family incomes, and distribution of employment opportunities.

Having painted this picture, readers will not be surprised that I prefer the second vision, in which high employment takes priority, complemented by activist manpower policies and selective intervention to reduce inflationary pressures. This vision has lots of problems, since the social insurance and social assistance functions of the welfare state always compete for emphasis and, in a changing world, no program is ever quite perfect in design. It is a vision of a society in which change is not a threat to be avoided but a fact of life whose costs and benefits are broadly shared. It is not a vision of absolute equality, but it is a vision of lessened inequality and a greater sense of national community.

Postscript

When I accepted the invitation to write this paper, I had no idea that the Perspective 2000 Conference would occur just after the conclusion of one of the most fascinating political debates this country has ever witnessed. My experience has been that, normally, interest in elections is very diffuse and, for most people, pretty minimal – for most people, politics is a distant affair, something which only comes into clear focus a week or less before voting day. But the 1988 election in Canada was different – there was a single major issue on which almost everyone focused, there was a positive thirst for information, and people really did try to *think* about a major national choice.

Of course, the free-trade debate went on at several interacting levels. At one level, it was a debate about the connection between economic, political, and social life – a debate epitomized by the conflicting assertions that the free-trade deal was "just a commercial agreement, cancellable on six months' notice" and the assertion that loss of control over economic events inevitably entails eventual loss of political sovereignty and cultural distinctiveness. At another level, the debate was about the proper role for governments and markets in economic life. Since many of the proponents of the deal did not believe that Canadian governments *should* attempt to control foreign investment or energy export pricing, they were quite sincere in stating that Canada "gave up nothing" in surrendering those rights. But others saw this as a disastrously costly surrender of sovereignty.

My point in mentioning these issues is that the same disagreements, on the connection between economic and social life and the proper role of the state, have very strong echoes in the debate on social policy. But the free-trade debate acquired most of its bite when it focused *directly* on social policy and when Canadians faced the issue, "What is it, *specifically*, which makes our polity different from that of the United States? What is special about us? What do we want to keep and what are we willing to trade away?"

Of course, not everyone saw it this way. Québecois tend to take their distinctiveness for granted and Albertans still remember the National Energy Policy, but in the rest of the country, the free-trade debate became inextricably intertwined with social policy.

And the interesting thing about the debate on free trade is the consensus it presented on some themes of social policy. Proponents of free trade did *not* argue for changes in social policy, for greater selectivity, or for the "harmonization" of Canadian and U.S. policies. Rather, they argued that part of Canadian distinctiveness was Canada's set of universal social programs, that this was *not* threatened by the Canada-U.S. Free-Trade Agreement (FTA) and that, indeed, the deal would create the wealth which would strengthen social policy in the future. Opponents of free trade argued that this was not true – that market pressures would compel "harmonization," while the services provisions of the deal would allow the penetration of the market mechanism into areas of social policy, like the administration of the health-care system from which it has, up to now, been excluded. Supporters of the FTA denied this. *But* the important point is that opponents and supporters of the FTA alike *agreed* that this sort of extension of the market mechanism was *not* desirable and that greater selectivity and "harmonization" was *not*, in principle, a good thing. Similarly, the deal's opponents claimed that subsidies to industries in poor regions were in danger because of the FTA, while supporters said they were not – nobody argued that they really were a bad idea anyhow.

To my mind, therefore, one of the most fascinating aspects of the free-trade debate is the consensus it presented in English Canada on the social democratic perspective, as epitomized in the saying, "The market is a good servant, but a poor master." Or, to put it another way, the market can tell you what something costs, but it does not tell you what you should buy. And there was a pretty widespread perception that this perspective is *not* characteristic of U.S. political and economic life, that placing *limits* on the role of market forces is one of the essential distinctions to be drawn between American and Canadian societies. Even though there was an undercurrent of mistrust that the supporters of free trade were not really sincere in their sudden support of the welfare state, still the *stated objective* of all three political parties was the maintenance of a substantial federal government involvement in universal social programs.

Of course, some of the public mistrust of the free-trade deal was surely due to the fact that many of the individuals who advocated free trade had earlier been observed commenting on the overextension of the Canadian welfare state and advocating retrenchment and greater selectivity. And a major failure of free-trade advocates was their omission to specify, in advance, a set of initiatives which would mitigate the losses some sectors of society could expect. Since no specific compensation programs were identified, and with advocates whose current defence of social programs seems incongruous with their earlier criticisms, the free-trade deal attracted widespread mistrust.

Hence, the free-trade debate illustrates three aspects of the argument I wanted to make in my paper:

1 When it is unclear how the losers from change will be compensated for their loss, they often try to block change – sometimes they succeed, sometimes not, but the struggle is always expensive.

2 The welfare state in Canada represents a social contract which has both redistributive and insurance aspects. In a world of unpredictable change, it offers the citizenry an element of personal security which private markets cannot provide.

3 The debate on free trade acquired much of its passion, on both sides, because it quickly became a debate where the issues of Canadian distinctiveness and the role of the market in Canadian life were mingled. Proponents of free trade did not dispute the desirability of universal social programs and an extensive welfare state – but the deal they proposed to the Canadian people was an historic one. As I read it, the Canadian people were offered "free trade *plus* the broad welfare state" – i.e., they were offered the assurance that the greater uncertainties of a more open economy would be balanced by an undiminished insurance role for the welfare state.

Since *both sides* of the trade debate identified social policy as an essential aspect of Canadian distinctiveness, the term "sell-out" acquired the *twin* meanings that the interests of middle-income Canadians were put at risk *and* the distinctiveness of Canadian life was endangered. Any future attempts to reduce the universal character of the welfare state in Canada will, I believe, be seen as welching on a very important deal and will be greeted with outrage by those directly affected *and* by those who perceive an erosion of Canada's distinctive nature. To my mind, an enduring legacy of this election is that it has aligned, more clearly than *ever* before, nationalist sentiment with class interests.

So I tend to think that future debates on social policy in Canada will not use the bland and colourless language which I used in my paper, where I contrasted "Vision I – The Limited Welfare State" with "Vision II – The Broader Welfare State" – rather I think that our future debates will refer to the "American" and the "Canadian" visions of the welfare state.

Because the American vision of the welfare state *is*, in many ways, unique among developed nations.

In international comparisons of economic inequality, of poverty rates, social expenditures and social security institutions, the United States stands out as quite different from other OECD countries. Australia and Canada stand out as quite similar to each other and intermediate between the United States and European nations. As new societies with a strong communitarian tradition, both have had an ideal of the welfare state which has been more ambitious than the American model, but less encompassing than the European example. The 1988 election clearly identified universal social programs as a promise of the federal government *and* a distinctive aspect of Canadian national identity. By injecting nationalism into the social policy debate, it has, in my view, fundamentally changed the terms of that debate.

Commentary by Thomas J. Courchene

The paper by Lars Osberg has clearly succeeded in providing the appropriate perspectives within which fruitful analysis of the evolution of the welfare state, and more generally social policy, can proceed. I want to begin my own analysis by attempting to summarize and on occasion to rephrase Osberg's paper. While the intent here is to be objective, subjectivity may well creep in since my own views on the appropriate relationship between the citizen and the state no doubt differ from Osberg's in that I tend to place more emphasis on markets, on incentives, and on individual initiative. To argue that I also place more emphasis on adjustment would probably not be correct: What is correct is that our conceptions of the appropriate *processes* of adjustment diverge.

In the rest of the paper, I take full advantage of the discussant's role: absolved from the Osberg mandate of ensuring that all bases are touched, I shall rely on a mixture of positive and normative economics to focus on my own view of the likely evolution of the welfare state. To anticipate this analysis somewhat, the principal point of departure from the Osberg paper rests in the interpretation of the status quo. Not surprisingly, a different starting point implies a different evolutionary path. The paper concludes with an attempt to reconcile our two views, or more correctly, to isolate those factors on which our views differ.

Osberg's Perspectives: An Annotated Review

Osberg's first approach is to cast the issue in the context of the life-cycle-income framework – "*the* distributional issue is the distribution of lifetime income and *the* equity issue is how much governments should intervene to redistribute income to the lifetime-income poor." This is a potentially powerful framework and while it is implicit in much of Osberg's analysis, one might have wished that he had made it more explicit. For example, the Rawls principle – "that if we did not know how fate would treat us, we would want social arrangements that ensured that the worst case we might experience would not be too awful" – can conveniently be viewed as ensuring that, *ex ante*, these expected lifetime-income streams are narrowed or, rather, as maximizing the anticipated income stream of those who would otherwise have the lowest lifetime incomes. Policies towards this end would essentially fall under the "equality of opportunity" umbrella and would include, among others, education, health, and the elimination of discrimination of all sorts. While progress in some of these areas has admittedly been slow, I think that societal consensus with respect to these equality-of-opportunity aspects of the overall social envelope is easier to attain than is the case for other aspects of social policy. A large part of the reason for this is that measures that ensure equality of opportunity are fully consistent with, indeed essential to, enhancing a nation's economic potential. In other words, these are positive-sum exercises so that one does not run up against the societal version of the "paradox of thrift" – what is possible for one is not possible for all.

Nonetheless, lifetime-income streams will differ. Here societies have intervened via social assistance and social insurance. Along lines roughly similar to Osberg's, I would define social assistance as redistribution designed to raise lifetime income up to some societal norm and social insurance as redistribution designed to account for contingencies that reduce a person's or family's income below their potential. In either case, the issue here is more along the lines of "equality of result" rather than equality of opportunity.

That this should generate less societal consensus is hardly surprising. At one level of concern are matters relating to the social policy per se – e.g., on the analytical side the degree of moral hazard and the issue of universal rather than selective programs, and on the more practical side the tendency to load social assistance onto social insurance programs and the fact that for most purposes social assistance is based on people's situations at a point in time, quite irrespective of their overall lifetime income. However, what makes equality of result such a contentious issue is that, unlike equality of opportunity, it is generally viewed as impinging in greater or lesser degree on the economic potential of economy, i.e., the manner in which the pie is sliced today affects the size of the pie to be redistributed tomorrow. More on this later, particularly in the context of the need to integrate social and economic policy.

Osberg's second perspective relates to intertemporal or intergenerational distribution, e.g., issues relating to aging, technical change, increasing globalization, and the environment. Osberg might have drawn from the environmental literature (more particularly the Brundtland report) and couched all of this in the context of "sustainable development." On this intergenerational front, the challenge to our generation of Canadians is to avail themselves of existing resources for their production, consumption, and distribution in a manner that ensures that the next generation is bequeathed a bundle of physical and human capital, resources, and quality of environment *at least* on par with that which we enjoy. Osberg's discussion of "environmental decay" is effectively along these lines.

However, despite the very substantial emphasis in Osberg's paper on the macro-policy stance and its interaction with social policy, the impact of government debt and deficits on future generations is not even mentioned. This is an important issue, even apart from the financial and real (lower capital stock) burden that is being transferred to the next generation. Effectively, Canadians and citizens of most industrial nations are increasingly valuing current consumption over future consumption. Why we are discounting the future to this degree is not clear (nuclear concern? impending environmental threat? a belief that debt and deficits are irrelevant?), but what is clear is that future generations are not likely to be bequeathed a healthy environment either if this same rate of time preference exists across the board.

Osberg's remaining perspectives relate to the two visions of Canada he proffers – the "limited welfare state," on the one hand, and the "welfare state as the embodiment of the social contract," on the other. Among the factors that Osberg uses to distinguish between these two visions are: (a) the relationship between unemployment and inflation; (b) the size of the public sector; (c) the importance of incentives in the social welfare system; and (d) the problem of policy coordination. The proponents of the limited welfare state (LWS) are deemed to place a high value on curbing inflation and are quite prepared to tolerate a reserve army of the unemployed, as it were, to achieve this end. Social contractarians (SC), on the other hand, place emphasis on full employment. LWS focuses a great deal on the incentives in the transfer system but frequently, Osberg argues, this is merely a clever guise for "questioning the nature of unemployment itself (that it is voluntary) and the appropriate degree of generosity for social insurance programs." For the latter, read: government is too large. Under SC, part of the full-employment bargain is the acceptance of wage restraint and a probability of relocation and/or retraining. In addition, for SC "the ideal of community . . . is an instrumental objective . . . whose value is that it creates the possibility of cooperative behaviour and a reduction in the obstructionism that might otherwise impede technical and structural change." Although there are "static allocative costs of inappropriate incentives, these are small relative to the cumulative output losses associated with high unemployment and low rates of increase in labour productivity." In terms of (d) above, LWS strives for disentanglement which takes the form, among others, of keeping "the labour movement . . . under continual pressure to defend its existence" and of opting for some version of a negative income tax which disassociates the welfare issue from the overall socio-economic structure by hiving it off into a self-contained subsystem which will "myopically pursue cost effectiveness." In contrast, SC requires a high degree of policy coordination – an overarching social contract in which "everyone expects continuous change, but also expects that the costs of the change borne by any individual at any given time will be relatively small." So as not to leave much doubt, the LWS vision is seen as generating "an increasing separation between the employed and the transfer dependent, and increased inequality in individual earnings, in family incomes and in the distribution of employment opportunities."

This is an incredibly stark portrayal of the alternative futures. Most of the Canadian economics profession would, by default, find themselves in the LWS vision and some, like myself, are explicitly placed there by Osberg's references and/or footnotes. Part, but only part, of the problem with Osberg's preferred version of the welfare state evolution is that "you can't get there from here." Frankly, the comparison with Sweden is wearing rather thin. Sweden has assumed a more central role in Canadian social democratic thinking now that the perennial co-favourite, West Germany, has decided to tolerate a dramatic escalation in unemployment and has seen its overall employment rate (employment as a percentage of population aged 15 to 64) fall 7 percentage points below Canada's (i.e., 67.2 per cent for Canada and 60.3 per cent for West Germany), from a position a decade ago where West Germany had the higher rate (OECD, *Historical Statistics 1960-86*). However, Sweden is not a particularly useful role model. First of all, the Swedes are incredibly homogeneous relative to Canadians – linguistically, ethnic-wise, religious background, and so on. Second, Sweden is a unitary state rather than a decentralized federalism and indeed a federalism where linguistic and industrial/economic differences are substantially heightened by where we have drawn our provincial boundaries. Third, and related to the previous points, Sweden has a very different set of institutions. Principal among these is Mancur Olson's observation that special interest groups in Sweden tend to be "broad" (societal) rather than "narrow." Thus collective bargaining in Sweden is basically nationwide in nature.[19] This means that unions have to internalize any negative consequences arising from the wage-bargaining process since there is nobody else in society to pass these costs on to. Hence, retraining, migration, and acceptance of technical change come naturally in this environment. Narrow-interest groups, however, need not be worried about these externalities since they can be foisted upon the rest of the system to deal with. One of Olson's principal conclusions is that, despite roughly similar interventions in the market system, Sweden has generally outperformed Britain on the economic front precisely because of its "encompassing" special interests and distribution coalitions.

The litany of Canadian-Swedish differences can be extended further, but the above three are probably sufficient to make the essential point that Osberg's preferred vision is not merely about the evolution of the welfare system. Rather it is an implicit, if not explicit, call for a wholesale rethinking of Canada – from a multicultural to a melting-pot philosophy, from federalism to unitary state, and from our adversarial collective-bargaining tradition to one embracing of some or another version of corporatism. Within this "vision" of Canada, social contractarianism no doubt makes good sense. Recall, however, that it was essentially the attempt to implement a version of this approach in Britain that got the United Kingdom into trouble and led to the Thatcher counter-revolution. And Britain is much closer to Sweden in terms of the above norms than is Canada.

Nonetheless, Osberg's contrasting futures do highlight two key features that must play centre-stage in the evolution of the welfare state. The first is the thrust of the macro stance, particularly the inflation-unemployment trade-off. The second related to the burden of adjustment: the challenge is to respond to the changing world economic order without relegating selective groups of Canadians to transfer-dependency, even if the transfers are deemed to be generous. Since, by default, Canada must contemplate its welfare state future, at least its short-term future, within some version of what Osberg refers to as LWS, the rest of the paper will highlight those features that are most likely to determine the nature of this evolution. The analysis discussion begins with a restating of the essence of the status quo.

An Alternative Vision of the Future of the Welfare State

I think that Osberg underestimates significantly the forces for change, on both the real and the social policy fronts, that are incorporated in what passes for the status quo. The combination of globalization and the computational/telecommunications revolution (henceforth referred to as the information society) is going to have major implications for small open economies, particularly resource-based economies. Here, Peter Drucker's [1986, p. 5] trilogy of "uncouplings" is relevant. The first is the uncoupling of the primary products sector from the industrial products sector. The Club of Rome's "running out" hypothesis has been turned on its head: the world is awash in primary products. "By early 1986 raw material prices were at their lowest levels in recorded history in relationship to manufactured goods and services – in general as low as the depths of the Great Depression." Thus much of what Osberg refers to as the spreading of the "Atlantic syndrome" to the resource hinterland has more to do with resource prices globally, rather than the nature of our social contract, or with the ongoing macro stance (although I will comment on the Bank of Canada policy later). One may not agree with Drucker's view that resources are likely to remain in "permanent oversupply," but it nonetheless remains the case that the challenge for Canadians is to make the transition from a resource-based economy to a human-capital or knowledge-based economy. Social policy is front and centre here, both in terms of human-capital formation or reformation and in terms of providing transitional support.

Drucker's second point is that employment is being uncoupled from industrial output. Again Drucker may go too far when he claims that what is being de-industrialized is not the industrial sector but rather blue-collar labour. But this is clearly occurring and the bulk of new jobs are in the service sector. This again has dramatic social policy implications because the stability of "middle-class" labour is diminishing and, with it, the traditional core strength of private-sector unions.

Drucker's third observation is that the "symbol economy" – capital movements, exchange rates, and credit flows – is replacing the flow of goods and services as the flywheel of the world economy. The traditional conception that differential rates of inflation and rates of productivity drive competitiveness across nations has been thrust on its head as massive exchange rate movements confer comparative advantage across nations. In particular, the combination of flexible exchange rates and near-perfect capital mobility has altered the manner in which world economies are linked. The U.S. government deficit fed rapidly into a dramatic appreciation of the U.S. dollar, the devastation of the U.S. exportables sector, and a record current-account deficit that remains stubbornly persistent. The Canadian deficit is much higher (as a proportion of GNP) than the U.S. deficit but we were spared resort to the foreign sector through most of the 1980s because Canadian private-sector savings were much higher than U.S. private-sector savings. Over the last couple of years, however, our private-sector savings have plummeted and we too are now running a balance-of-payments deficit. Fiscal deficits and debt do not play well electorally but in light of the massive electoral spending promises, Canada faces the likelihood of falling into the U.S. exchange-rate roller coaster.

This brings me to Osberg's concern with the ongoing macro thrust. It is difficult to make the case that fiscal policy has been anything but expansionary. But monetary policy has been too tight. What Canada needs (and what the world's capital markets will likely force on Canada) is a change in the policy mix – towards tighter fiscal policy and easier monetary policy.

All told, this picture is one of a status quo embodying eroding roots to the past and growing forces for change. In terms of the overall economy, the realization is increasingly that the rewards are going to go to those nations that can adjust quickly and efficiently to the changing world order. As enterprises embody more flexible production processes, the pressures on individual Canadians intensify. Osberg's observation that the aggregate share of labour in GNP has fallen reflects this pressure – in a world that increasingly rewards incentive and initiative, the returns to capital (both physical and human) will likely increase and more and more Canadians will shift from workers to entrepreneurs.

It is in this context that one must assess the adequacy of our social policy framework and programs. Basically, we are attempting to address the challenges of the 1990s with a social policy framework designed to meet the challenges of the 1960s. Those were the good old days as it were – we utilized the cushion of resource-based growth to mount a comprehensive set of transfers to persons, enterprises, and even governments. Canadians were so rich and the external environment was so accommodating that we were able to design social policy largely in terms of social parameters without much concern for how the transfer system interacted with the production system. The shoe is now on the other foot: the challenge is now to reintegrate social and economic policy in order to feed the flailing engines of economic growth, and to ensure that the framework is able to meet the new needs on the social front (day-care, aging, an enhanced emphasis on human capital). Moreover, in the process we have also "rediscovered" inequality concerns. Combined with the domestic, let alone the external, pressures on the deficit, it seems to me rather inevitable that social policy will have to move in the direction of embodying greater incentives relating to labour force reentry and initiative, of enhanced targeting of benefits, of an increased use of user fees (adjusted for ability to pay) for a broader range of public services (e.g., education) and, more generally, of reintegrating social and economic policy. Had we the institutions, the political structure, and the degree of consensus that exist in some other countries, our range of choices would presumably be broader. For better or for worse, we do not have this luxury. While it is undoubtedly true that the best "social policy" is a job, it is also the case that there is only Pyrrhic security on the social policy front in the context of an economy that fails to adjust. Moreover, in the context of a resilient economy, the macro levers can be more safely deployed in the direction of lending more emphasis to full employment than to inflation.

All of this probably leaves me well within Osberg's conception of the LWS. However, I would argue that over the near term the principal avenue for undermining Canada's hard-won gains on the social policy front is, as already noted, to face the 1990s with a framework designed to address the challenges of the 1960s. There is, however, a range of further challenges on the horizon, and the way that some of these get played out may tilt the system more in the direction of Osberg's view of social contractarianism. The first relate to income distribution (i.e., inequality as distinct from poverty).

Emerging Social Policy Issues

Income Distribution

Societal consensus in favour of a market economy reflects that, among other things, free markets have proven themselves in terms of generating high-average incomes and that the resulting distribution of income reflects, to a large degree, relative social products. However, the arbitrary windfalls associated with the inflation roller coaster, the energy-shock-related recessions, and the generalized uncertainty relating to the emerging economic order make the existing distribution of income more difficult to rationalize in terms of social productivities. This is exacerbated by the fact that some of us collect rents because we have protected niches, whether they go by the name of tenure or seniority or whatever. It is complicated further when industrial leaders' salaries are now extending into the seven-figure range while their workers are expected to confront automation and technical change often without salary, let alone job, guarantees. Presumably, much of what is driving Osberg's contractarian vision of the future welfare state is rooted in these concerns. And his view of the future will become increasingly appealing, unless Canadians find an acceptable way to address these underlying concerns.

While this is not the venue for outlining solutions, it is appropriate to emphasize one critical aspect – human capital. If knowledge-intensive industries are indeed the new cutting edge in terms of international competitiveness, then educational opportunity will be the major criterion of the income class in the 21st century. The challenge here is enormous, ranging from rethinking the whole educational system to ensuring that access to the new information technology is not a function of income class. Intriguingly enough, one of the reasons why Canada has fallen so low in international educational comparisons relates to our elitist immigration policy. The German approach is to bring in low-wage guest workers. This serves to depress low-skilled entry wages and provides an incentive for Germans to build their own human capital. The Swedes have a rather strict immigration policy so they too must invest in their own if they wish to be world class. For much of the postwar period our immigration, via the point system, sought the best and the brightest. This depressed the high-skilled wage relative to the unskilled thereby providing perverse incentives vis-à-vis human-capital formation. This is not an argument against immigration. Rather, it is a comment to the effect that since we do not "pay" for the human capital that other countries invest in our immigrants, we tend to underinvest in our own citizens. This is another part of the reason why the transition from a resource-based culture to a human-capital-based culture is likely to be a difficult one for Canadians.

The Nature of the Public Sector

The conception of the public sector or more generally the relationship between the citizen and the state is undergoing quite dramatic change. Some of this is ideologically driven and, therefore, not very amenable to reason, either way. Some, however, is driven by efficiency – private production of publicly funded goods and services (e.g., contracting out or vouchers) or private funding of publicly provided goods and services (tuition fees or user charges), although the latter is sometimes also argued on distributional (ability to pay) grounds. Technology is also blurring the line between the private and public sectors; Teleglobe may have made sense as a Crown-owned natural monopoly prior to the telecommunications revolution, but no longer, given the avenues for by-pass.

But it is the social policy area where the role of the state has undergone its largest transformation.[20] Once relegated to the provision of *collective* goods such as defence, justice, research, and culture, the state is now in the forefront of providing *private* goods and, in particular, household consumption. In the recent debate over child care, the essence of the issue was whether the state rather than the family has the comparative advantage in the provision of day-care: the fact that day-care would be largely publicly funded was already decided. Some of this reflects the fact that the state has come to be viewed as the leader in social policy – maternity benefits for the work force, equal pay for work of equal value. Given, however, that there is a limit on the public purse, these additional social policy roles undertaken by the state are, intriguingly, leading to the "privatization" of many of the traditional collective goods – police, research, and so on.

The Charter and Social Policy

The assumption in the Osberg paper and in the above analysis is that Canadians through their legislators have a free hand in the design of our social policy framework. This assumption is highly questionable now that, via the Charter, the courts have a potentially powerful role in the social policy arena. Already, the Supreme Court has pronounced on a wide range of social programs and this represents only the tip of the iceberg in terms of cases that are already before the courts. For example, if age discrimination for such programs as Old Age Security, UI and the Guaranteed Income Supplement were to come under fire from the courts, this would usher in a virtual revolution in terms of social policy architecture. In this particular case, the result would be to increase substantially the attractiveness of some version of a negative income tax applicable to all Canadians. Relatedly, the Charter may come to be viewed as preferable to legislatures or unions as a route for pressing for social reform. Speculation as to what the courts may or may not do is not particularly fruitful. However, what is clear is that the potential exists for powerful "external" influences on the evolution of our social programs and more generally the nature of the welfare state.

Federalism and Social Policy

The literature on the relationship between federalism and social policy appears to suggest that federalism has imparted a conservative bias in the evolution, to date, of our social policies. Notwithstanding that this bias may also carry over to the future, I want to focus on three aspects of the current federal-provincial scene that are likely to have a substantial impact on social policy evolution. The first is that our social programs, perhaps especially Medicare, are about to become much more varied across provinces. All the provinces are under tremendous fiscal pressure. For example, with health care accounting for roughly 35 cents of each provincial spending dollar and with the challenges posed by an aging population, the provinces will be scrambling to find more cost-efficient ways of delivering not only health care, but the full range of social programs under their purview. Indeed, this experimentation is already well under way, but it will surely intensify, particularly as technology opens up new avenues for experimentation. On the health-care side, the combination of interactive telecommunication and the "smart card" technology implies that the "home as hospital" becomes almost inevitable, given the rising costs of hospital care. In general, what federalism has to offer here, whether in terms of health care, social assistance, or work incentives, is the possibility for 10 simultaneous experiments relating to the design and delivery of social programs. If "winners" appear, they will quickly be copied by the remaining provinces. Although many Canadians may take a dim view of all of this, it is my own opinion that the decentralized nature of social program delivery is probably the most important asset Canada has in terms of the future evolution of these programs. Lest one downplays this aspect, recall that it was Saskatchewan's postwar experimentation that gave us Medicare.

The second aspect of the federal-provincial social policy scene is that for the first time in the postwar period, and perhaps much further back, Ontario is emerging as the social policy leader. Elsewhere [1988] I have attempted to document why this is the case. For present purposes, it will suffice to note that much of the recent Ontario agenda is a social policy agenda (e.g., equal pay for work of equal value). This dramatically alters the nature of the social policy dynamic in Canada. If Saskatchewan innovates, New Brunswick will likely react by weighing citizen demand against projected costs. However, if Ontario innovates, then the issue is likely to become one of "regional disparities" and almost immediately the pressures will come to rest on Ottawa. This is particularly the case if the Meech Lake Accord is successful, since Ottawa can, under the guise of a shared-cost program, walk into any area of exclusive provincial jurisdiction.

The Meech Lake Accord, itself, is the third element in the federal-provincial arena that is likely to influence the evolution of social policy. At present, it is virtually impossible to conceive a fully coordinated approach to the transfer system as it affects, say, the elderly. Some of the programs here are federal (OAS and GIS). Some are provincial (Medicare, drug plans, and housing subsidies) and some are federal-provincial (CPP/QPP). Constitutional challenges would be flying every which way if Ottawa attempted to rationalize all of this. Meech Lake cuts through all of this. Ottawa can propose an overarching shared-cost program encompassing all aspects of the social policy envelope as it affects the elderly. To be sure, some provinces (e.g., Quebec) may exercise their ability to opt out, but most would not. This *process* dimension of Meech Lake effectively means that Canada has found a clever, even ingenious, way around any jurisdictional problems that might stand in the way of implementing an otherwise efficient and/or equitable set of social programs.

The FTA and Mulroney's Social Contract

I have long argued that we need to alter major aspects of our social programs. For example, once Canadians pass the 65-year-old threshold, the treasury bestows on them a tax or transfer gift of roughly $6,000, *regardless of income class.* Surely, this does not make sense on equity grounds since increasingly the upper-income elderly have already availed themselves of tax-assisted occupational pensions and RRSPs. In my view, there is ample scope for more selectivity here, where most of the benefits would flow to the lower-income elderly, an increasing proportion of which are single women.

Enter the free-trade agreement and Mulroney's commitment that social programs will not be affected. What does this mean? – that changes Canadians may have ushered in *without* the FTA will now be precluded? Phrased in Osberg's terms, what precisely is the nature of the "social contract" that the Prime Minister has made with Canadians? In my view, it is essentially that Canada will not "Americanize" its social policy. This is not much of a constraint because Canadians have no desire to adopt U.S.-style social policy. Beyond this, however, the thrust of this paper is that social policy, like other aspects of policy, must be brought in line with the forces and challenges of the emerging global order. This does not mean that the politics of social policy change will be easy.

Conclusion

This has been a rather broad-ranging discussion triggered by Osberg's paper. I have been somewhat unfair in that I have focused on several issues that were not highlighted in his paper. In part this is because I do not have a satisfactory answer to the principal challenge of the Osberg paper, namely, how does LWS evolve in a manner that incorporates some of the crucial features of SC? Unless those in my camp can provide appropriate alternatives, Osberg's preferred vision may become Canada's evolving reality.

III Employment/Human-Resource Development

The theme of human-resource development is present as a strong undercurrent in all four sections of this volume. It surfaces at several points in Section II and it reappears in Section IV. It is, however, the central concern of Section III in which such issues as global labour market developments, the future of industrial relations, workplace innovation, and education and training are discussed.

Global Employment

The purpose of Richard Freeman's paper is to set out certain salient features of global labour market development in order to consider their implications for the future of Canadian labour market institutions and wages. Specifically, he focuses on six major developments:

1 The de-unionization of Canada's major economic partners – the United States and, to a lesser extent, Japan and the United Kingdom.

2 The deregulation of labour markets to increase flexibility.

3 The shift in world employment, particularly in manufacturing, to less-developed countries and an accompanying new division of labour among countries.

4 The differing patterns of growth of employment, real wages, and productivity between European and non-European OECD countries, which suggest the existence of a real wage/productivity-employment trade-off across countries.

5 The rising wage differentials in the United States and the United Kingdom that threaten greater wage inequality in the future.

6 The relatively high and stagnant or increasing rates of poverty in the United States and Canada, especially among children.

Given this global backdrop, what are some of the specific issues facing the Canadian labour market? A major question for Freeman is to what extent Canadian unions can expect to maintain the amount and kind of influence, and play the kind of role, that they have had in the past. Countries with which Canada has strong ties – Britain, Japan, and particularly the United States – have experienced declining rates of unionization. In the United States, private-sector union density has fallen for three decades and is now less than 15 per cent, the overall figure for the non-farm labour force being 17 per cent.

Pressures on Canadian labour institutions will come about in several ways. First, unionized Canadian firms will increasingly have to compete against non-union firms in the United States, Japan, and the United Kingdom. Second, footloose capital will tend to avoid higher-cost union settings, with a consequent loss of employment and income for Canadian workers. Third, and closely related, the "union-free" objective of U.S. business is likely to spill over to Canadian management and stiffen employer opposition to unionism.

Another challenge for the Canadian labour market stems from certain global trends in employment and wages. Freeman draws attention to the less-developed countries' (LDCs) growing share of the world's industrial labour force (69 per cent in 1985) and their penetration of mass-production manufacturing markets. The challenges for Canada are several. We must facilitate the process of adjustment that is needed to effect the switch of resources from goods to services and knowledge-based activities. And we must, in doing so, maximize the productivity of our own human resources and the benefits of their complementarity to Third World labour, while maintaining the living standards of the least-skilled Canadians. A tall order indeed, since, as Thomas Kochan reminds us in the second paper of Section III, the continuing process of industrial restructuring, and the quest for comparative advantage through product differentiation and the exploitation of quality niches commanding a price premium, require fundamental changes in organizational behaviour, including industrial relations and human-resource practices.

Freeman's interpretation of post-recession growth in the OECD countries is that, with similar output gains, the Europeans enjoyed higher wages but high and stagnant joblessness, while the non-European OECD countries took their improved performance in the form of employment growth. For governments, therefore, a major concern must be whether Canada (as the United States, but in sharp contrast to most European countries) can maintain sufficient labour market flexibility and wage moderation to facilitate adjustment through continuing strong job creation.

Furthermore, equity remains a thorny issue since, in addition to well-documented evidence of the uneven skill and income impacts of technological change and industrial transformation, Freeman points to the sharp and unexpected emergence of significant wage differentials in the United States and the United Kingdom in the 1980s. Unexpected because the increased education and skill of the baby boomers should have had a supply effect, the differentials have taken the form of exceptionally rapid increases in demand for skilled labour in Britain and – more disturbingly – of significant drops in real wages of blue-collar manual workers in the United States. If the U.S. experience is a guide, then Canada's least-skilled workers in the declining goods-producing industries must be a prime target of equity-based labour market adjustment programs.

As far as the future of Canadian unionism is concerned, Richard Freeman sees no inexorable trend towards de-unionization, pointing out that the examples of the United States, the United Kingdom, and Japan are countered by advanced economies such as Belgium, West Germany, and Scandinavia, where union density has been maintained or has increased. Nor is there any systematic relationship between union, the density, and macroeconomic performance: Sweden, with the highest union density, shows recent figures for GDP growth, employment, and productivity similar to the country with the lowest union density – the United States. For Freeman, Canadian labour has a little breathing space that derives from two factors. First, the legislative framework is less hostile to the certification process than is the case in the United States and less tolerant of the virulent anti-union activities that are common south of the border. Second, our nationally funded fringe benefits (health care in particular) help to give some Canadian firms a competitive edge vis-à-vis American rivals.

Nor need Canada necessarily follow the Australians' lead in pursuing a more centralized "corporatist" Scandinavian model of industrial relations, since once again it appears that neither the highly centralized nor the highly decentralized industrial-relations systems have a monopoly on economic performance.

All this is not to say that union density and the form of the industrial-relations system are irrelevant. On the contrary, there seems to be general agreement that there *must* be transformation and adaptation of labour market institutions and practices. The unions' ability and willingness to play a major role in that process of change will determine, in large part, their future relevance and effectiveness. Furthermore, countries with high and low levels of union density and with different degrees of centralization certainly differ with respect to *micro* performance: in the provision of supplementary compensation benefits, wage dispersion, and overall levels of income inequality and poverty. Thus the evolution of institutional forms has consequences for income distribution.

What about the inherent ability of the Canadian labour market to adjust? Change is incessant, and we know that millions of Canadian workers make successful work-life adjustments every year. But can we handle the rapidity and the enormity of global change exemplified by the advanced countries' shift out of goods production? To the Jeremiahs, Freeman says:

> Look to Massachusetts for an example of how an economy can successfully adjust to the loss of substantial traditional manufacturing employment. In the 1960s and 1970s textiles, garments, shoes and other traditional manufacturing industries fled to the low-age, low-tax, and mainly non-union South and Southwest. By the 1980s Massachusetts boasted the lowest unemployment rate among the 11 major U.S. industrial states, and wages that had increased from below to above the national average.

Responding to Freeman's points, Craig Riddell tells us that Canadian polls show a decline in public support for unions, which now enjoy a lower level of confidence than in the United States. Next, management opposition is manifested in the rise in unfair labour practices in Canada, and recent legislative changes in Canadian provinces imply a tougher climate for labour. Further, Freeman's argument about labour costs is substantiated by Riddell's finding that in Canada there is an average union/non-union wage differential for otherwise comparable workers of about 20 per cent.

For Riddell, the hope for Canadian unions to resist the forces of de-unionization lies in their willingness to take a more innovative approach to workplace organization and the use of human resources as well as technology to improve competitiveness and maintain a high-wage economy. He notes, however, that on the issue of the degree of centralization of the industrial-relations system, the best performance appears to cluster at the extreme, so that the classic Canadian tendency to seek the happy medium may not be desirable in this case!

The essential optimism of Freeman and Riddell rests, however, on the proposition that Canada has some latitude for choice, and that it can gain benefits from the changing world scene and minimize the transitional and other costs of adjustment, but that this will "require flexible and far-sighted policies . . . by private as well as by public decision-makers" [R. B. Freeman, 1988]. But it is to Kochan that one must turn for clues as to what, in practice, the responses of managers, unionists, and governments are likely to be, and to Abella for their prospects of success.

The Future of Industrial Relations

Thomas Kochan's paper, in addition to the global labour-market developments considered by Freeman, emphasizes worldwide competitive forces, including technological change, greater product differentiation, and the shortening of product life cycles, that place a premium on quality and innovation. For Kochan, these pressures translate into demands on industrial-relations systems for:

- labour cost moderation;
- improved productivity;
- flexibility in the use of human resources;
- a highly skilled and motivated work force; and
- sustained innovation in labour management relations.

To this formidable set of challenges inherent in global labour market trends, Tom Kochan adds another that derives from the growing diversity of the labour force. Combine the increasing participation and share of women in the labour force with the growing numbers of immigrants, and it is clear that the needs, aspirations, and attitudes of Canadian workers in the future will be very different from what we have been used to in the past.

The U.S. estimates indicate that between the years 1987 and 2000, almost 90 per cent of all new labour force entrants will be women, minorities, or immigrants. Immigration will undoubtedly be important in the Canadian context where 20 per cent of the labour force is foreign-born. Particularly worrisome is evidence that immigrants' earnings are significantly below those of native-born Canadians, partly due to language deficiencies and other constraints on the ability of immigrants to learn skills required to advance to better jobs. The U.S. evidence suggests that women and minority youth receive relatively less on-the-job training than their white male counterparts and enjoy proportionately lower rates of return to the training they do receive. In Kochan's words, such results "pose significant challenges to policy makers and practitioners alike given the growing consensus regarding the importance of training and life-long learning to long-term income, and the projected demographic mix of future labour force entrants."

What, then, are the prospects? First, according to Kochan, it seems clear that pressures for labour-cost moderation will continue. Although stories of concession bargaining frequently cited American firms in the past, the fact is that marked moderation in Canadian wage settlements has been observed since 1982. Memories of the recession have not yet receded, and job security has apparently been a higher priority than wage gains. However, another strategy for reducing labour-cost pressure – contingent payment systems like bonuses and profit sharing – have so far had only modest penetration in the labour market. The prospects for their wider diffusion in the future are questionable. Canadian unions are less well disposed towards such schemes than their U.S. counterparts. For one thing, effective participation in such plans requires a greater sharing of information on financial performance and future business plans than is currently the case in Canadian firms. And in the face of a perceived reluctance to share information and encourage greater participation in the decision-making bodies and processes that administer contingent payment schemes, workers and union leaders are unlikely to accede to them. Moreover, such plans throw the equity of an organization's whole reward system into sharp relief, as when annual profit shares for the United Auto Workers' members were accompanied by handsome bonuses for General Motors' executives. Kochan concludes that while pressures for wage moderation will continue in Canada, there are clear signs that countervailing equity and real income pressures are building.

Second, Kochan places considerable emphasis on organizational change and human-resource development as essential ingredients of "strategic restructuring" (the quest for comparative advantage through product differentiation or market segmentation by producing goods and/or services that can command a price premium) and technological change. He cites the example of Ford responding to dire economic straits in the early 1980s by a combination of initiatives that involved, *inter alia*, a commitment to promote employee involvement, the introduction of profit-sharing in exchange for new employment security provisions, communications forums, and expanded training and education programs. Reviewing Japanese, European, and North American literature, Kochan concludes that "the full potential of new technology can only be reached by adopting new organizational forms that effectively integrate technology and human-resources strategies and practices." A key design feature of successful Japanese manufacturing processes (which *can*, incidentally, be transferred to

Canadian soil, as recent examples attest!) is the concept of "humanware," in which "technology" is broadly defined to encompass innovation in human-resource development.

Despite evidence of a growing awareness of the need for innovations in technology and in human-resource practices to go hand in hand, and despite highly visible examples of the benefits that flow from this principle in this and other countries, Canadian firms have not rushed to embrace it. Till now, most Canadian managers have invested far less energy and emphasis on human-capital development than on physical capital and financial resources. Where efforts have been made to introduce innovation practices, they have often been met with skepticism by workers and unions, particularly since, in some cases, they have been an ill-disguised attempt to keep a company or plant union-free. Prospects for success will therefore depend critically on determined efforts to build channels of communication that promote mutual trust. Perhaps nowhere, at the moment, is this more critical than in the introduction of new technologies. Kochan's review of U.S. evidence demonstrates convincingly that a *sine qua non* for successful adoption of new technologies is the significant involvement of worker (user) representatives at the early stages of the technological choice process and throughout the implementation phase.

Are there any signs of changing attitudes? A Canadian study, based on interviews with union leaders, documents the skepticism towards innovative work practices and employee involvement in decision making – even to broad-based tripartite consultation among labour, management, and government officials. Yet, "although labour leaders espouse an adversarial union culture, they are not opposed to cooperation with employers on areas of mutual concern."

Where does this leave Canadian management, labour, and governments? Canadian employers have not pushed new workplace principles as aggressively as their American colleagues, nor have they provoked the same hostility in industrial relations. Thus a more gradualist, evolutionary approach towards more collaborative behaviour might be possible. An alternative, in Kochan's view, would be for management to invest in a 20-year campaign to reduce the influence of unions to insignificant proportions. Since, given the size and political strength of Canadian unions, that seems like a costly if not impossible strategy, Kochan sees increasing efforts by management to promote change and adaptation with union leaders, either through conventional channels of negotiation and contract administration or by the development of new institutions for consultation at the workplace, enterprise, industry, and national levels. Such progress will come hard, however, requiring nothing less than fundamental changes in the managerial power distributions and organizational boundaries. A highly charged political debate is likely to accompany this process, which will result in success only if organizational culture – and, as Kochan insightfully points out, *management reward systems** – are reinforcing. [*Emphasis added]

For their part, Canadian union leaders, given much higher membership rates, have considerably more room to manoeuvre than their American brothers. This suggests that being involved in fierce rear guard actions to stem further loss of membership and influence, or grudging accession to new practices, Canadian unions have greater choice to adopt a less reactive, more proactive role by developing an active strategy that *leads* the debate on how to adapt to change in ways that are consistent with the interests of their members. "Such an effort would need to be guided by a vision of not only the role labour wishes to play at the national and provincial levels of policy making, but also the long-run role unions want to play at the workplace and in strategic managerial decision making."

As far as governments are concerned, the fundamental challenge for policy makers is how to institutionalize and diffuse the necessary changes. But the record of North American governments in facilitating such changes is not encouraging. In Kochan's view, the only hope for significant government influence in this field is that national policy makers will come to recognize industrial-relations innovations as an integral part of Canada's long-term economic strategy.

Canadian commentator Rosalie Abella appears much less sanguine than Kochan (or Freeman and Riddell, for that matter) about the coming process of labour market adjustment in this country. She sees a future infused with nervousness and fear as labour and management struggle for control over the levers of power and engage in a "titanic conflict – for what they see to be their very survival." And it is the essence of liberal democratic policy determination, she contends, that this tension will spawn a turbulent political process in which the warring sides repeatedly seek influence and ascendancy. The process will be intensified, in Abella's view, because it will be played out against the backdrop of the free-trade agreement, which will surely bring controversial adjustment issues into much sharper focus.

The spectre of confrontation arises, in Abella's view, because Canadian firms and industries, faced with global market pressures, will identify three alternatives: seek to change any perceived impediments to success, seek to relocate if they cannot, or close down. And if their attempts to change are met with opposition, they will threaten one or other of the other two courses of action. Thus unions and governments are confronted with fearful dilemmas. For the unions, failure to cooperate as handmaidens of economic success carries the risk of circumvention or redundancy. Cooperation, on the other hand, carries for government the risk of a radically redefined social contract, and for unions, the risk of *collusive obsolescence*. The corollary of this vision is that, in the coming struggle, the protagonists' preoccupation with the minimization of short-term risks may take them well beyond the year 2000, before they have experienced and recovered enough to consider appropriate *long-term* alternatives for public policy.

Clearly, human-capital formation will be an integral part of the process of labour market development and adjustment considered by Freeman and Kochan.

Future Trends and Issues in Education

In the view of George Psacharopoulos, the centrality of human-resource development in various countries' strategies to adapt to and exploit the process of global economic transformation will place enormous burdens upon the education system. The link between education and economic development is firmly established and widely understood. Thus underdeveloped countries seeking an escape from grinding poverty and burgeoning demographic pressure, pursue the goal of universal literacy. The advanced nations look to their educational systems for a competitive edge in the headlong race for technological mastery and economic prosperity.

In all countries, however, the demands on the educational system are fast outstripping the state's ability to provide. Whether in debt-ridden African countries with crushing population pressures or in an infinitely better-off Canada with a major budget deficit and some tough questions about the social welfare costs of an aging population, the financing problem is daunting. Equally daunting is the fact that, at a time when Canadians are, on average, better-educated than ever before, we have an illiteracy problem of major proportions, a high-school drop-out rate that approaches 30 per cent in some jurisdictions, and a depressingly weak performance of Canadian students compared to Asian and European students on mathematics and science achievement examinations.

Less well documented, but of equal concern, are the doubts raised about the adequacy of investments in training for those already in the labour force, and especially older, blue-collar workers most exposed to the risk of permanent job loss due to changes in technology. Such concerns stem from evidence that displaced workers with little education and/or general training have poor prospects of reemployment and from widely held views that Canadian industry, so long the beneficiary of skilled immigrant labour, continues to underinvest in human-capital formation.

What, then, of the education and training underpinnings of the enormous adjustment task the Canadian labour market is called upon to perform? According to Jeannine David-McNeil, the outlook, at present, is bleak: budget difficulties have forced university and school-board officials to cut spending to levels insufficient to ensure an adequate quality of education; deterioration of laboratory equipment, diminution of library collections, too few computers, low participation rates at learned society meetings, zero or negative growth in academic salary payments are all manifestations of this malaise. In the face of such problems and in the context of the growing demands placed upon the education system, David-McNeil asks: How can we maintain, let alone improve, our global economic position?

This commentator places special emphasis on the *quality* of the Canadian education system. She refers to OECD studies that point out that a little understood, but extremely important, role of education resides not just in the transmission of theoretical and practical knowledge, but in forming the attitudes, ethics, "mentality," and "outlook" of young people. These indirect and intangible effects of education affect, in turn, such factors as entrepreneurial spirit, work habits, attitudes towards innovation, work satisfaction, diligence, flexibility, and sensitivity – in short, all the factors necessary for successful adaptation to the challenges of rapid global change. It is for this reason that we should take David-McNeil's warnings about quality erosion and the funding crisis in Canadian education to heart.

Technological change, more than ever before, puts a premium on basic communications skills. Therefore, it is chilling to learn that in Canada today close to one quarter of the over-18 population are unable to read, write, or handle figures at an elementary-school level. This places an added burden on the labour market adjustment mechanism, since the vocational training for new entrants, as well as for workers moving to new jobs and skills, may require prior remedial education. Moreover, the content and quality of Canadian educational curriculae are, in any case, too often found wanting: too much emphasis on preparation for declining professions, for example, or even for obsolete qualifications.

Fortunately, David-McNeil has some suggestions to offer to policy makers, particularly on the acute problem of financing. Following Psacharopoulos's suggestions about the trend in public/private financing responsibilities, she recommends, at postsecondary and especially university levels, the forging of much closer links with private enterprise. Since many private organizations already contribute assistance to the education system in cash or in kind, she advocates a closer, more coordinated and continuous framework of linkages. Next, she feels that individuals could contribute more on the revenue side, citing the province of Quebec, where real tuition costs have not risen in over 30 years. Such an increase would also, in her view, help eliminate the student dilettantes and reduce the inherent regressivity of a system in which the less well-off subsidize the education of the rich. And in a provocative conclusion, Professor David-McNeil argues for a stronger federal role in education, on the grounds that education policy is an instrument of economic policy, not just a social cost.

Conference Discussion

A number of important points arose from the observations and comments of the audience. First, several speakers warned of the difference between the American and Canadian union movements. Canadian unions, in their view, have already demonstrated an appreciation of the need to adapt to change, particularly in the province of Quebec, and particularly at the local level. One observer suggested that Canadian unionism is "social unionism," in the sense that it plays an educative role by enriching the debate on social issues such as the environment. Another warned that Canadians may learn some lessons from the decline of the American union movement, but should look to Europe – and especially to Sweden – for models of social consensus in which the social partners may collaborate to manage the process of change and equitably distribute its benefits and costs. Collaboration of the major stakeholders and the role played by communication were emphasized and several speakers pointed out that, in addition to adjustments to technological and organizational change, a major challenge for industrial relations in this country derives from the adjustments that will follow the free-trade agreement.

The structure of the Canadian labour market in the future – with its slower-growing labour force and relatively fewer young workers – was the reason for one commentator to emphasize the importance of the female work force, the need for close examination of the economics of the family, and an assessment of immigration needs and impacts. The question of immigration arose also in the context of the growing cultural diversity of the labour force and the challenges this poses for community assimilation, the character and mission of the union movement, and the education system. Finally, on the subject of education, it was suggested that there appeared to be widespread consensus on the crucial role of human-resource development to promote technological superiority, productivity, and competitiveness. However, there are some genuine fears that the poorer parts of the country might be unable to afford the necessary human-capital investments and thereby lose further ground in terms of the capacity for income and wealth generation.

7 Canada in the World Labour Market to the Year 2000

Richard B. Freeman

As a small open economy in an increasingly interdependent world, Canada is significantly affected by wage, employment, and productivity changes beyond its borders. Labour market developments in the United States, Japan, Western Europe, and in developing countries create an environment that helps to determine the opportunity set from which Canadian management, labour, and government can "choose" labour-relations practices, or, alternatively, set parameters that determine the consequences of those choices.

In this paper, I describe ongoing and plausible future changes in labour market institutions, employment, and wages in the world economy that are likely to have substantial impacts on the Canadian labour scene and speculate on the problems these developments may thrust upon management, labour, and government. With respect to labour market institutions, the development that I believe will most affect Canada is the de-unionization of its closest economic partners, the United States, Japan, and the United Kingdom. On the labour market side, I consider: the shift in the world labour force towards developing countries, particularly in manufacturing, which raises issues about factor-price equalization pressures on wages in developed countries; the growth of employment in non-European OECD countries compared to the stagnation of employment in Europe; and changes in wage inequality and rates of poverty that suggest problems in the future income distribution and labour skills of the Canadian and American labour forces, in particular.

My focus throughout is on one basic issue: the extent to which Canada can preserve its labour market institutions and high-wage economy in the face of changes on the world labour scene. Must the country mimic Japanese or American labour-relations practices to preserve its competitive position among developed countries? Will economic competition from the Third World and increasing world trade and capital mobility reduce Canadian wages? What are the possible consequences of the high and nondecreasing wage and income inequality in Canada for the competitiveness and well-being of the Canadian work force? How much leeway will Canada have in structuring labour relations and determining wages and working conditions?

My principal conclusion is that despite an increasingly interdependent world, Canada can maintain its individual brand of high-wage modern capitalism, but that this will require greater flexibility and foresight in economic decision making than in the past, substantial changes in trade union policies, and possibly greater public or private interventions to improve the wages of the least-skilled workers. The factual underpinnings for this conclusion are evidence that: a range of labour market institutions, from decentralized wage-setting with limited unionization to centralized wage-setting with strong unions, are compatible with national economic success; Third World labour is more likely to complement than substitute for most Canadian (and other developed-country) workers; and wage inequality increased significantly in some economies in the 1980s.

Institutional Changes

Canada's labour relations are closely related to those of the United States and the United Kingdom. All three countries have competitive labour markets, decentralized bargaining between management and unions or individual workers, relatively little governmental intervention, and trade unionism based on local union organizations. In contrast to much of Western Europe, neither Canada, the United States, nor the United Kingdom have strong central union federations or employers' associations involved in national pay-setting. The linkages in institutions between Canada and the United States are, of course, particularly strong. Canadian labour law was patterned after the United States' Wagner Act, and many of the same unions and employers operate on both sides of the border. Because Japan's labour laws and institutions developed under American occupation of that country, there is also greater similarity between Canadian and Japanese industrial relations than is often recognized. The close institutional and economic ties between Canada and the United States and between Canada and the United Kingdom and Japan make *the rapid de-unionization of those countries the most important foreign development likely to impact the Canadian labour scene.*

The facts of declining unionization of the United States, Japan, and the United Kingdom are clear from data on union membership for each country (see Table 7-1). In the United States, private-sector union density has been falling for three decades, with the rate of decline increasing in the

Table 7-1

Levels and Changes in Union Membership as a Percentage of Non-Agricultural Wage and Salary Employees across Countries, 1970-86

	1970	1979	1985-86	1970-79	1979-86	1970-86
Countries with sharp rises in density						
Denmark	66	86	95	+20	+9	+29
Finland	56	84	85	+28	+1	+29
Sweden	79	89	96	+10	+7	+17
Belgium[1]	66	77	--	+11	--	--
Countries with density rises in the 1970s and stable in the 1980s						
West Germany	37	42	43	+5	+1	6
France[2]	22	28	--	+6	--	--
Canada	32	36	36	+4	0	4
Australia	52	58	56	+6	–2	+4
New Zealand	43	46	--	+3	--	--
Ireland	44	49	51	+5	+2	7
Switzerland	31	34	33	+3	–1	2
Norway	59	60	61	+1	+1	2
Countries with density rises in the 1970s and declines in the 1980s						
Italy	39	51	45	+12	–6	6
United Kingdom	51	58	51	+7	–7	0
Countries with declining density						
Austria	64	59	61	–5	+2	–3
Japan	35	32	28	–3	–4	–7
Netherlands	39	43	35	+4	–8	–4
United States	31	25	17	–6	–8	–14

[1] Visser excludes pensioners, and reports: 55 per cent in 1970, 69 per cent in 1979, and 74 per cent in 1983.

[2] Visser reports densities of 26, 24, and 21 per cent, which would put France in declining density.

SOURCE United States Department of Labor, U.S. Bureau of Labor Statistics; London School of Economics; and OECD Data Set, updated using relevant Country Statistical Abstracts.

1970s compared to the 1960s, and in the 1980s compared to the 1970s. The principal reason for the decline appears to be the growth of anti-union activity by management, which now largely espouses the goal of a union-free environment. In Japan, union density has fallen since the early 1970s, in part because of government attacks on the railroad workers' and teachers' unions. In the United Kingdom, density rose in the 1970s when the Labour Party enacted laws favourable to unions and collective bargaining, but has dropped sharply in the 1980s as Mrs. Thatcher's government enacted laws unfavourable to trade unionism. By contrast, union density in Canada has trended upward, rising in the public sector and holding steady in the private sector through the early 1980s, when the private-sector density began to drop. As a result of these trends, Canadian union density exceeds American and Japanese densities in most private-sector industries, including manufacturing (Table 7-2), and often exceeds British density as well.

A continued fall in union densities in the United States, Japan, and the United Kingdom (which seems likely at this writing), will place severe pressures on Canadian labour institutions in several ways. First, through foreign trade, where unionized Canadian firms will be competing with increasingly non-union American, Japanese, and British firms. The Canada-U.S. Free-Trade Agreement will en-

Table 7-2

Changes in Union Density, by Sector, United States, Canada, and Japan, Selected Periods

	United States			Canada			Japan		
	1973-75	1986	Δ	1975	1984	Δ	1975	1986	Δ
					(Per cent)				
Sectors:									
Manufacturing	37	24	–13	49	45	–4	40	33	–7
Construction	38	22	–16	63	39	–24	18	19	1
Transportation, communications, and utilities	50	35	–15	56	60	4	66	56	–10
Service	7	6	–1	15	38	23	26	19	–7
Mining	35	18	–17	47	33	–14	41	42	–1
Trade	11	7	–4	9	13	4	20	18	–2
Finance, insurance, and real estate	4	3	–1	1	9	8			
Government	24	36	12	73	67	–6	67	69	2
Total	29	18	–11	35	37	2	34	28	–6

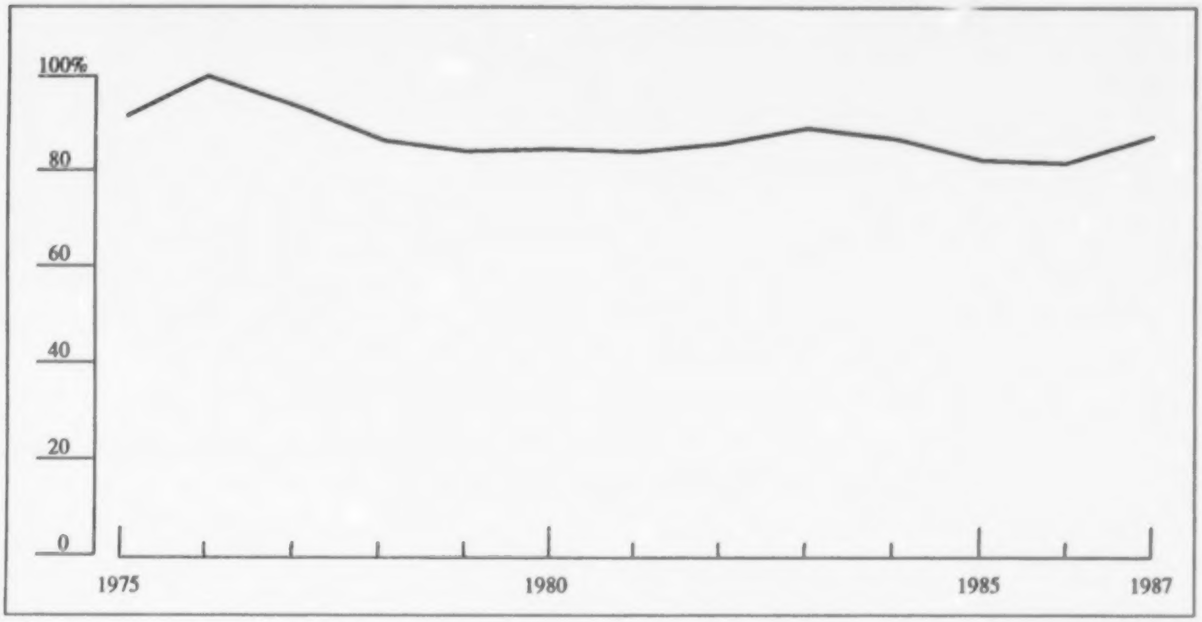
SOURCE The data for the United States, 1973-75, were taken from Richard Freeman and James Medoff [1979], with government estimates from May 1973-75, from *Current Population Survey Tapes*; United States, 1986, from the United States Department of Labor, U.S. Bureau of Labor Statistics, January 1988; Canada, from Pradeep Kumar, et al., "The current industrial relations scene in Canada, 1986," Queen's University, Kingston, Ontario; and for Japan, 1970 and 1986, from Japan Ministry of Labor, *Basic Survey of Trade Unions: Foreign Labor Trends*.

hance the trade pressure, but even absent the agreement, de-unionization of Canada's trading partners will make life more difficult for unionized Canadian firms and for Canada's collective bargaining system. If the past decade provides a reasonable clue to the future, however, Canadian unions and management should be able to compete successfully with non-union overseas competitors. In the 1980s, Canadian wages in manufacturing barely changed relative to U.S. wages (Chart 7-1) despite the differing unionization trends in the two countries and significant fluctuations in the value of the U.S. dollar on world markets. As long as union and management negotiators are responsive to changes in the wages, exchange rates, and productivity that determine relative costs across countries, collective bargaining can meet the challenge of non-union foreign enterprises. Indeed, evidence from U.S. manufacturing industries suggests that unionized sectors have greater flexibility in wage responsiveness to foreign competition, because their above-market wages permit concessions in the face of competition that threatens jobs in unionized firms [Freeman and Katz, 1987].

A second, more significant pressure on Canadian labour market institutions is likely to come from increased mobility of capital. The issue here is one of profitability. Unions that bargain in a decentralized manner, pushing up wages as much as the employer can bear, are almost certain to reduce enterprise profits, as numerous studies in the United States document for that country [see the literature cited by B. Hirsch, 1988]. To the extent that Canada's collective bargaining system threatens lower profitability on new investments, capital will go to other countries. The recent experience of the Ford Motor Company in the United Kingdom provides an example of such multinational capital mobility. Ford gave British unions a take-it-or-leave-it proposition on the possible location of a new plant in the United Kingdom: workers had to accept a one-union, one-plant agreement on terms favourable to the company or lose the plant. When the British unions did not accede to the company's demands, Ford put the new plant in Spain. I expect that as the common market and the Canada-U.S. Free-Trade Agreement take hold, we will see increasing instances of firms bargaining over labour conditions before committing themselves to an investment. In North America, companies will increasingly ask if they should put a new plant in a non-union setting in the United States or in a union setting in Canada. To the extent that Canadian unions raise wages without compensatory productivity and cost-saving gains,

Chart 7-1

Canadian Hourly Compensation Costs[1] for Production Workers in Manufacturing as a Percentage of U.S. Hourly Compensation Costs, 1975-87



1 Hourly compensation costs are adjusted for exchange rates.

the firms will choose to invest in the non-union United States. Even at equal profitability, some multinationals may prefer the non-union setting because management will retain greater control of workplaces.

Third, the "union-free environment" goal and "anything-goes-to-defeat-unions" attitude of U.S. business are likely to spill over at least in part to Canadian management, stiffening employer opposition to unionism in the private sector. While trade pressures and threats of multinational capital flows are concentrated in manufacturing, whose share of employment is falling, the growth of anti-union sentiment among management is likely to pervade the entire private economy.

Can the Canadian collective bargaining system meet this challenge and avoid the winds of de-unionization or are the experiences of its three major economic partners the harbinger of the future?

The fact that unions have maintained or increased density in several developed countries – West Germany, Belgium, and Scandinavia, for instance – at the same time that density has plummeted in the United States, the United Kingdom, and Japan suggests at a minimum that there is no inexorable world trend towards de-unionization which will necessarily envelope Canadian institutions.

Two characteristics distinguish countries with continued strong union movements from those undergoing de-unionization:

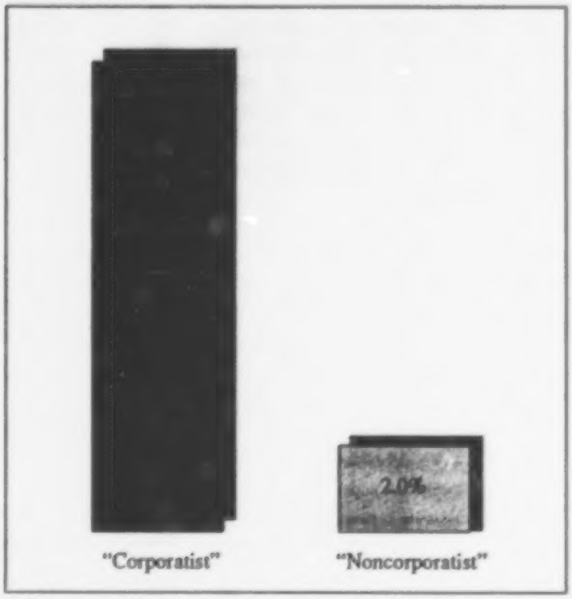
1 They tend to have centralized wage-setting that reduces the profit incentive for employers to fight unionization of their enterprise. In some cases this centralization takes the form of national wage bargaining of the so-called neo-corporatist type (Chart 7-2). In others, the mechanism is the legal extension of collective agreements to non-union employers.

2 They tend to be small open economies, where decision makers have greater personal contact with persons on the other side of the bargaining table than in larger economies, and where there is an inevitable pressure to consider national ramifications of collective negotiations.

While Canada has the decentralized collective bargaining system of the de-unionizing countries, suggesting that its

Chart 7-2

Percentage Point Changes in Union Density, 1970-85/86



NOTE "Corporatist" countries include Austria, Denmark, Finland, the Netherlands, Norway, Sweden, Switzerland, and West Germany.

SOURCE Colin Crouch, "The conditions for trade union wage restraint," in *The Politics of Inflation and Economic Stagnation*, eds. Leon Lindberg and Charles Maier (Washington, D.C.: The Brookings Institution, 1985).

union institutions are at risk, it is also a small open economy, particularly when one considers its federal system. It thus has resemblances to both the economies that are de-unionizing and those that are maintaining their national labour institutions. Within Canada, Quebec's industrial relations are the most "European," and it is thus not surprising that unions fare better there in the 1980s than in other provinces.

One reason why there is no general trend towards de-unionization in the West despite the generally conservative swing of the 1980s is that, contrary to the claims of anti-union critics that unions are inimical to economic efficiency, the macroeconomic performance of countries does not differ with the level of unionization. The country with the highest union density, Sweden, has similar rates of growth in GDP, employment, and productivity as the country with the lowest union density, the United States. The comparability of outcomes shows that *no set of labour relations institutions has a monopoly on good, or bad, economic policies or efficient behaviour*. Labour and management can produce as or more flexible and economically sensible responses to the changing world economic environment under collective bargaining as under decentralized managerial/market decision making.

This is not to say that unionism has no effect on national economic outcomes. Far from it. Countries with high and low levels of unionization differ in the more micro aspects of economic performance, notably in the dispersion or inequality of wages; the provision of supplementary benefits provided either through national legislation or through collective bargaining; and in overall levels of income inequality and poverty. High union representation is associated with lower inequality of pay, more vacation time and related social benefits, and lower rates of poverty.

Given the maintenance of strong unionism in several developed countries, Canadians should view the rapid de-unionization of its major economic partners not as a harbinger of the future, but rather as an early warning alarm bell that the current and likely future world economic environment is going to place great pressures on the Canadian system of private-sector collective bargaining. Canadian unions will find their ability to negotiate "monopoly" wage premiums more limited than in the past. They will be forced to look more towards the bottom lines of the companies with which they negotiate, thereby preserving profitability, or else suffer the consequences of lower investment and higher unemployment, and risk incurring increasingly severe management opposition. Canadian management will similarly have to adjust its collective bargaining strategies to meet the challenge of non-union competitors from overseas, probably including providing greater information to its unions to permit realistic assessment of the challenge.

Canada has two buffers which will give its labour relations institutions time to adjust to the de-unionization of its closest economic partners. The first buffer is the country's labour laws. Most Canadian provinces certify unions on the basis of card checks, rather than adversarial elections (British Columbia and Nova Scotia are at present exceptions). In several provinces labour law has become more rather than less favourable to collective bargaining, in contrast to the situation in the United Kingdom. Most important, Canadian laws do not allow management to engage in the virulent anti-union activities that are common practice in the United States. As a result, pressures on Canadian labour institutions are more likely to take the form of capital flows or threats of such flows than of a management war to prevent unionization. One implication is that the de-unionizing pressures will be more effective in manufacturing than in services. This will add to the ongoing shift in the locus of the Canadian union movement from the manual manufacturing workers who have historically constituted the bulwark of unionism to service-sector, public-sector, and white-collar workers.

The second buffer is the composition of compensation in Canada. Compared to American (and many European) competitors, Canadian firms have smaller supplementary wage payments, because fringe benefits such as health care are nationally funded rather than negotiated at the firm level. Given that the larger U.S. firms in manufacturing pay relatively high health care and related benefits, Canadian firms have an edge in competing with those firms. At the same time, however, the decline in the overvalued U.S. dollar has removed the major buffer for the Canadian labour market of the early and mid-1980s.

While valuable in giving institutions time to adjust to the changing economic environment, buffers of the type described above do not eliminate the environmental changes nor the need for adjustments to them. Given the nature of the challenge and the rapid decline of unionization in the United States, Japan, and the United Kingdom, Canadian union leaders, management, and industrial relations practitioners will have to develop bold, innovative strategies to maintain the nation's collective bargaining system, if that is what is desired.

The 1980s' response of the Australian trade union movement to the changing world labour scene provides the best example of the type of dramatic innovations that may be required in Canadian industrial relations. Looking at the divergence in unionization in the developed world in much the same manner as I have presented above, Australian union leaders undertook in the mid-1980s to transform their industrial-relations institutions from its historic confrontational British-style mode towards a more centralized cooperative Scandinavian model. They have tried to convince constituent unions and their members to take a more macro perspective on the nation's economy and accept lower wage increases than they could otherwise get in order to maintain national competitiveness and reduce unemployment. While I do not expect Canadian labour and management to find the Australian response desirable or perhaps even feasible for Canada, it illustrates the type of large-scale innovative thinking that may be needed to avert de-unionization.

One other institutional change in developed countries deserves attention: the movement towards increasing flexibility in labour markets and reducing restrictions on enterprise decision making that has become a hallmark of economic reforms in the 1980s, and one of Western Europe's main responses to its unemployment problem. Because Canada, such as the United States, already has one of the most highly flexible labour markets in the world, I do not see the issue of increased flexibility as pertinent and would not expect the country to face significant pressures to reduce the limited governmental interventions in the labour market. In the relatively unregulated United States, in fact, the opposite appears to be taking place – increased governmental intervention in the labour market as the courts and Congress substitute legal protections for the diminished protection of collective bargaining. In the past several years, American courts have weakened the employment-at-will doctrine that allows non-union firms to fire workers without just cause, while Congress has enacted early notification for plant closures and is considering parental leave legislation.

Finally, as the daily headlines on *perestroika* indicate, the Soviet Union and Eastern Europe are also moving towards deregulating and decentralizing their economies. Given that these countries have reasonably educated and skilled work forces, a sizable capital stock, and the scientific base and modern technology necessary for economic modernization, successful restructuring could have a substantial impact on the world economy. My experience with institutional reforms in Eastern Europe, based on a World Bank Mission to Poland, suggests, however, that one should not expect rapid success in this area, and thus I do not regard this development as likely to exert any sizable influence in the foreseeable future.

In sum, the development on which Canadian decision makers should, in my opinion, focus is the de-unionization of Canada's closest economic partners, particularly the United States. If Canada wants to preserve its collective bargaining system, unions, management, and government will have to devise creative strategies to deal with the pressures towards de-unionization that have devastated the American labour movement, and to a significant though lesser extent, the Japanese and British labour movements as well.

Employment and Wages in the World Labour Market

When one examines labour from a global rather than country perspective, three developments stand out: the growing share of the world employment in less-developed countries (LDCs), particularly in manufacturing (see Table 7-3); the stagnation of employment in OECD-Europe compared to non-European countries; and the sudden increase in wage inequality in several countries in the 1980s. These changes are producing a new division of labour in the world, with potentially important consequences for the Canadian (and other developed-country) labour markets.

Table 7-3

Breakdown of Labour Force per Capita, by Type of Economy, 1965 and 1985

	Labour force per capita		Population aged 15-64		Labour force per person aged 15-64	
	1965	1985	1965	1985	1965	1985
			(Per cent)			
Type of economy:						
Low-income	46	45	54	59	85	76
China	45	50	55	65	82	77
India	41	37	54	56	76	66
Other	38	35	52	52	73	67
Lower middle-income	38	37	52	55	73	67
Upper middle-income	36	38	56	58	64	66
Industrial market	..	..	63	67	..	..

SOURCE The World Bank, 1986 and 1987.

The Shift of Employment in Industry to LDCs

Consider first the growing LDCs' share of the world labour force employed in industry. In 1965, 51 per cent of the world's industrial labour force (excluding the Eastern European centrally planned economies) worked in developing countries; in 1985, 69 per cent of the world's industrial labour force worked in developing countries. Two factors underlay this dramatic shift: the rapid growth of the population in LDCs, which has led to greater labour force growth in there than in developed countries (see Table 7-4), raising the developing-country share of the world labour force from 77 to 83 per cent; and industrialization of the LDCs that shifted labour from agriculture to industry and services (see Table 7-5).

Given the huge differences in output per worker between the developed and less-developed countries, the shift in the world labour force to the LDCs might have been expected to reduce labour productivity in the world by significant amounts. Instead, world labour productivity rose, in large part, because of significant increases in output per worker in developing as well as developed economies (Table 7-6). Despite rapid population growth, the vast majority of developing countries enjoyed rapid increases in labour productivity and wages until the economic slowdown and debt crisis of the 1980s [Bloom and Freeman, 1986].

The shift in the world's industrial labour force to the less-developed countries would have been even more rapid in the 1980s save for two factors: the Third World debt crisis and the perverse flow of world capital to the United States. Neither of these problems has been resolved as yet, but whatever their eventual solution, I anticipate a resurgence of investment and growth in manufacturing in the Third World and an eventual flow of capital from the United States to the developing world. The difference in labour costs between even the most rapidly industrializing countries – such as South Korea – and the developed world (see Table 7-7), has to attract additional investment in manufacturing to the Third World in future years. This leads me to see the experience of the newly industrializing countries of Asia in the 1980s, and of Brazil and Mexico in the 1960s-1970s, not the 1980s economic disasters that befell many debt-ridden LDCs, as providing the best picture of the likely future world labour scene. In the long run the low wages and available labour in the LDCs will *transform the historic division of labour between developed and less-developed countries from one in which the former manufactured goods from raw materials and inputs imported from the latter to one in which the advanced countries provide services and knowledge while the LDCs produce mass-production manufactured goods.*

Does this mean that the wages of Canadian (American, British, and so on) labour will be bid down by Third World

Table 7-4

Growth Rates of Population and Labour Force, by Type of Economy, 1965-80 and 1980-85

	Average annual population growth rates		Average annual labour force growth rates		Differences in growth rates (labour force minus population)	
	1965-80	1980-85	1965-80	1980-85	1965-80	1980-85
			(Per cent)			
Type of economy:						
Low-income	2.3	1.9	2.1	2.3	–0.2	0.4
China	2.2	1.2	2.4	2.5	0.2	1.3
India	2.3	2.2	1.7	2.0	–0.6	–0.2
Other	2.7	2.7	2.2	2.5	–0.5	–0.2
Lower middle-income	2.5	2.5	2.4	2.6	–0.1	0.1
Upper middle-income	2.2	2.0	2.6	2.3	0.4	0.3
Industrial market	0.9	0.6	1.3	1.0	0.4	0.4

SOURCE The World Bank, 1987.

competition? Will factor price equalization lead to "Korean level wages" in developed countries, as union leaders and businessmen sometimes allege (usually when arguing for protective legislation, or in the case of businessmen, for wage concessions)? I think not.

One reason why I reject this scenario for the future is that the crude wage differentials between countries greatly exaggerate true cost differences. They exaggerate true differentials because they ignore the greater productivity of the more-educated and skilled workers in developed economies

Table 7-5

Distribution of Labour Force across Economic Sectors, by Type of Economy, 1965 and 1980

	Labour force in					
	Agriculture		Industry		Services	
	1965	1980	1965	1980	1965	1980
			(Per cent)			
Type of economy:						
Low-income	78	72	9	13	13	15
China	81	74	8	14	11	12
India	73	70	12	13	15	17
Other	78	70	8	10	14	20
Lower middle-income	66	55	12	15	22	29
Upper middle-income	45	29	24	31	30	40
Industrial market	14	7	38	35	48	58

SOURCE The World Bank, 1987.

Table 7-6

Increase in Real GDP Minus Increase in Labour Force

	(Per cent)
Low-income	68
Middle-income	112
Industrial market	51

SOURCE Based on data from the World Bank.

that justifies much of the higher pay. Indeed, the enormous skill difference between the typical LDCs and developed-country worker implies that the labour in LDCs should be viewed as complementary rather than substitutable for labour in developed countries. This, in turn, implies that industrialization of the Third World will increase rather than decrease average wages in developed countries. Workers with skills comparable to the skills of labour in developing countries will, to be sure, suffer from growing Third World competition (of which more later), but most workers will benefit, if not in the labour market, in the product market through lower-priced goods from overseas due to comparative advantage.

A second reason for rejecting the notion that world competitive pressures towards international wage equalization will reduce wages in developed countries is that equalization has taken the form not of decreasing real wages in developed countries, but rather of increasing wages in the developing countries. In 1975, manufacturing compensation in Korea was 7 per cent of that in Canada. In 1987, it was 14 per cent of Canadian compensation. This convergence was due to the fast growth of real wages in Korea, not to any fall in wages in Canada. I surmise that this pattern is no accident – that pressures towards factor price equalization from newly industrialized countries' adoption of modern technologies will raise wages in those countries to a much greater extent than they will decrease in wages in the economically advanced countries.

Table 7-7

Hourly Compensation for Manufacturing Production Workers, Developing Countries, Canada, and the United States, 1987

	(U.S. dollars)
Canada	11.97
United States	13.44
Brazil	1.49
Mexico	1.59
Hong Kong	2.12
Korea	1.79
Singapore	2.37
Sri Lanka	0.29*

*1986.

SOURCE United States Department of Labor, U.S. Bureau of Labor Statistics.

These arguments do not, of course, imply that shifting manufacturing to the LDCs will occur without significant adjustment costs nor that the less-skilled and educated in developed countries will not be harmed by increased competition from low-wage Third World labour. Even modest economic changes impose adjustment costs, and the loss of traditional manufacturing industries will be more than a modest change. To minimize these costs, Canada and the other developed countries will have to develop long-term strategies to manage the adjustment process: training or retraining workers who, 10 or 20 years ago, would have gone into manufacturing jobs, finding innovative ways to maximize the benefits of complementarity between Third World and domestic labour, and developing schemes to maintain the living standards of the least-skilled natives, which I expect will lead to a major reassessment of work and pay in the service sector.

That economies can successfully adjust to substantial loss of traditional manufacturing employment is illustrated by the "Massachusetts Miracle." In the 1960s and early 1970s, many areas of Massachusetts looked like economic basket cases due to the loss of textiles, garments, shoes, and other traditional manufacturing industries to the low wage, low taxation, and predominantly non-union South and Southwest. By the 1980s, however, much to the surprise of those who thought that the North could not "rise again," Massachusetts had recovered sufficiently to boast the lowest unemployment rate among the 11 major American industrial states and wages that had increased from below to above national average. The "miracle" was nothing more than the operation of a flexible market economy restructuring the industrial and skill composition of employment to the changing economic environment.

The economic performance of U.S. states, in general, provides additional support for the notion that, contrary to popular rhetoric, manufacturing is not critical to an economy's providing high wage "good jobs." States with relatively low and declining manufacturing employment such as Massachusetts, Connecticut, or Minnesota have higher per-capita income and average state wages than states with larger shares of jobs in manufacturing, such as North Carolina and South Carolina.

Properly managed, either by the competitive market or collective bargaining, possibly with a guiding hand of government, the decline of traditional manufacturing need not reduce the average level of wages in Canada.

The Shift in Employment from OECD-Europe

Turning to the developed world, the most important change in the past 20 years has been the growth of employment in non-European OECD countries relative to European countries. From 1970 to 1985, employment in non-European OECD countries increased by over 20 million workers while OECD-Europe employment was virtually unchanged. Part of this shift is due to differences in birth rates among the OECD countries. Part is due to differences in immigration, with Canada, the United States, and Australia receiving some two thirds of all permanent immigrants in the 1970s. In addition to these demographic factors, however, the shift in employment from Europe reflects differential changes in employment/population rates and in output per worker by country that resulted from different country responses to the world economic slowdown. Whereas the United States (and at the other end of the institutional spectrum, Sweden) responded to the slowdown with a marked reduction in rates of growth of real wages and productivity that allowed significant increases in employment, many European countries responded with labour market and macroeconomic policies that maintained rates of growth of real wages at the cost of jobs.

This difference in country labour market and macroeconomic policy responses to essentially the same world economic stimulus can be seen in two ways. First, by the fact that, from 1973 to 1987, GDP growth rates per capita hardly differed between OECD-Europe and non-Europe OECD, while employment growth rates diverged greatly. Second, by the relation between the growth of employment and the growth of GDP and real wages across countries, which reveals a significant inverse relation between wages and employment conditional on GDP of the labour-demand type [R. B. Freeman, 1988*b*]. From 1973 to 1986, countries with low real wage growth such as Sweden and the United States had relatively high employment growth, while countries such as Belgium and West Germany with relatively high real wage growth had low employment growth. The lesson I draw from this difference is that basically similar capitalist countries can adjust differently to the same world economic conditions and thus that countries have a greater range of choice in responding to exogenous world shocks than many economic models would lead one to believe.

All told, ongoing and likely future changes in employment worldwide suggest that Canada will have to make major labour market adjustments in the future. This in turn suggests the value of long-term strategic thinking about the best mode of adjustment and choices between employment and wage growth under differing economic conditions on the part of private and public decision makers.

Wage Differentials and Poverty

The third major change in the world labour market with significant implications for Canada is the sharp 1980s increase in wage differentials in the United States and the United Kingdom, and to a lesser extent in other developed countries as well. What makes this development so striking and troublesome is that it is a marked turnaround from the change in wage differentials in the 1970s and most earlier decades.

In the 1970s, the ratio of the earnings of more- to less-skilled workers fell in the United States and the United Kingdom and in virtually all other developed countries, including Canada. The increasing education and skill of the work force, particularly of baby boomers who went to college and university in the 1960s and entered the job market in the 1970s, raised the relative supply of skilled labour more rapidly than the relative demand for skills, and thus reduced differentials along various dimensions. The premium for education, for instance, dropped in the United States, Japan, the United Kingdom, Canada, and throughout Western Europe, as did differentials between professional and white-collar workers and blue-collar workers. Labour markets seemed to be reducing inequality through classic supply and demand forces, mitigating the need for politically divisive and costly governmental redistributive interventions. At the same time, the rate of poverty tended to drop as well, though, here, social policies such as transfers to the elderly and income maintenance programs played a major role, along with economic growth that raised wages for all workers.

The 1980s have been characterized by a very different pattern of change, particularly in the United States and the United Kingdom, where decentralized markets are the key wage-setting mechanism. *Wage differentials have risen sharply despite continued growth in the relative supply of the more skilled* (see Table 7-8). In the United Kingdom, the increased differentials took the form of exceptionally rapid increases in the real wages of the more-skilled (British

Table 7-8

Changes in Wage Structure, United Kingdom and United States, 1979-80 and 1985-86

	1979-80	1985-86
	(Per cent)	
United Kingdom		
Male nonmanual/manual	1.17	1.33
Professional II/clerical	1.54	1.74
Professional III/clerical	1.35	1.42
Managerial/clerical	1.37	1.44
Managerial/labourer	1.44	1.69
United States		
White-collar/blue-collar	1.43	1.48
Professional/clerical	1.59	1.75
Managerial/labourer	1.69	1.93
College/high-school male, full-time	1.43	1.65

SOURCE The data for the United Kingdom were based on the Statistics from New Earnings Survey; and for the United States, on the Statistics from Current Population Survey.

real wages increased more rapidly than those in any other OECD country in the 1980s) compared to roughly constant real wages of the less-skilled. In the United States, where average real wages increased only modestly, if at all, the rise in differentials has taken a very different form: significant drops in the real wages of the less-skilled, particularly blue-collar manual workers and male high-school graduates. From 1979 to 1987, the real hourly wages of male workers fell by 1.5 per cent per year in the United States, while the real hourly wages of salaried males rose by 0.4 per cent per year. The decline in real wages has, moreover, gone beyond the very bottom of the skill distribution to affect sizable numbers of traditionally middle-class workers. If the turnaround in the direction of change of wage differentials represents a fundamental shift in the balance of market forces and persists into the foreseeable future, developed countries, including Canada, will face a major problem of increased inequalities which have the potential for creating economic divisiveness and increased poverty.

What fundamental economic development might explain the rise in wage inequality? Given that the relative supply of educated and skilled labour has been increasing, any answer must lie on the demand side of the market or in changing market institutions. On the demand side, analysts have speculated about the possible reasons for an accelerated long-run decline in the relative demand for blue-collar labour. One often-suggested possibility is that the decline is due to new technologies that alter the structure of work, shifting tasks from manual to white-collar and educated workers. Another is that the shift in the industrial mix of production towards services has changed relative labour demands. Murphy and Welch [1988] hypothesize that the U.S. trade deficit has reduced the relative demand for the less-educated in that country. On the institutional side, the decline in trade unionism in the United States and the United Kingdom, and the weakening of the American minimum wage, may have played a role. My back-of-the-envelope calculations suggest that one quarter of the rise in the white-collar/blue-collar skill differential in the United States can be attributed to the fact that proportionately fewer manual workers enjoy the benefits of a union wage premium. However, there is as yet no compelling evidence to support any of these explanations and reason to believe that here, as elsewhere in economics, each accounts for only a small part of the overall change. Even absent a definitive explanation of the rising wage premium, however, I would expect there to be a long-term problem for the least-skilled group of workers – those with Third World skills – as factor price equalization due to trade and capital mobility with LDCs will exert downward pressure on their wages.

Going from wage differentials to the income distribution, the fact that the English-speaking countries in general, and Canada and the United States in particular, rely to a greater extent than other developed countries on the market to determine the income distribution raises the danger of significant increases in inequality and possibly rates of poverty. As Canada and the United States already have exceptionally high rates of child poverty (five or six times those in many continental European countries – Table 7-9), the long-term

Table 7-9

Children Living in "Relative Poverty" with Income Adjusted for Family Size, 50 Per Cent below Median in Country

	(Per cent)
United States	18.0
Canada	13.4
Australia	13.1
United Kingdom	7.1
Netherlands	5.9
Switzerland	4.6
Norway	3.5
Sweden	3.1
West Germany	2.0

SOURCE Lee Rainwater, tabulations of LIS database.

danger is that these countries will create an increasingly dualistic society: yuppies on the one side and the underclass of the poor on the other. While I find it difficult to envisage Canada or the United States in their entirety facing dualism of the type that currently pervades black America, perhaps this is a failure of imagination. At any rate, a long-term increase in wage inequality will surely create a major social problem, which will have to be addressed, either through greater income redistribution or major improvements in training and education that in the United States at least seem awfully difficult to effectuate.

Summary

In this essay, I have reviewed some of the major ongoing and likely future changes in the world labour scene and sought to draw their implications for the future of Canadian labour institutions and wages. My analysis has focused on six major developments:

1 The de-unionization of Canada's major economic partners – the United States and, to a lesser extent, Japan and the United Kingdom.

2 The deregulation of labour markets to increase flexibility.

3 The shift in world employment, particularly manufacturing, to less-developed countries, and development of a new division of labour among countries.

4 The stagnation of employment in OECD-Europe contrasted with growth of employment in non-European OECD countries, associated with an employment-real wage/productivity trade-off.

5 The rising wage differentials in the United States and the United Kingdom that suggest a major drop in the demand for less-skilled workers.

6 The relatively high and stagnant or increasing rates of poverty in Canada and the United States, especially among children.

I have argued that a small open economy such as Canada has a range of options in adjusting to these economic developments. Canada need not follow the United States along the path of de-unionization and need not suffer major economic losses from increased foreign competition and the shift of manufacturing to the Third World. To gain the greatest benefit from the changing world labour scene and to minimize transitional and other costs of adjustment will, however, require flexible and far-sighted policies and a careful monitoring of overseas developments by private as well as by public decision makers.

Commentary by W. Craig Riddell

Richard Freeman has written an interesting and wide-ranging paper which describes several important developments occurring in the world labour market and speculates about their implications for Canada. The strength of the paper is its global outlook and its focus on what the author feels are salient developments. My comments will attempt to achieve three purposes: critically assess Freeman's main conclusions, elaborate on the implications of these developments for Canada, and note some important issues not discussed by Freeman.

Six major developments are discussed. The most important, according to Freeman, is the "rapid de-unionization" of our major trading partners – the United States, the United Kingdom, and Japan. Because of the prominence given to this issue in Freeman's paper, it will receive the bulk of my attention and will be examined first.

Differing Patterns of Union Growth

One can debate whether it is appropriate to characterize the United Kingdom and Japan as "rapidly de-unionizing." Certainly this description is valid for the United States, and that development is very important for Canada. In Japan, the decline in the extent of union organization over the past 15 years has been steady but slow. The decline in the United Kingdom has been rapid since 1979, but this was preceded by a rapid rise and the current union density (the fraction of the labour force unionized) has now returned to its 1970 level.

Furthermore, the level of union density – as well as its rate of change – is also very important for many of the issues at hand. For the United Kingdom, despite the recent decline, union density at about 50 per cent remains much higher than Canada's 36 per cent (see Table 7-2). Union density in Japan is slightly lower than in Canada. All three countries – Canada, the United Kingdom, and Japan – contrast sharply with the United States in terms of union density.

I mention these aspects for the simple reason that a quick or too literal reading of Freeman's paper might give the impression that, in terms of trends in unionization, Canada is very much an outlier compared to its major trading partners. I view the distribution on the "de-unionization scale" as being much more uniform, with the United States at one extreme, Canada at the other, and Japan and the United Kingdom in the middle of the distribution. Similarly, among these countries the current level of union density is quite uniformly distributed, with the United States again at one extreme, the United Kingdom at the other, and Japan and Canada in the middle.

However one describes these countries' experiences, the divergent trends in union growth between Canada and the United States – as well as the markedly different levels of unionization – are clear. This divergence has significant implications for Canada, even more so now with the negotiation of the bilateral free-trade agreement between the two countries. In order to discuss these implications we need to address several questions: (i) What are the causes of the divergent patterns of union growth, and what do these causes imply about the future course of unionization in Canada?; and (ii) How will union leaders and members, management; and policy makers respond to the pressures for de-unionization identified by Freeman? How should they respond?

The Divergence in Union Growth between Canada and the United States

Between 1900 and approximately 1960, union growth in Canada exhibited a pattern broadly similar to that in the United States. However, during the past three decades the patterns of union growth in the two countries have diverged sharply. Union density in the United States has declined steadily during the past three decades – from about 30 per cent in the late 1950s and early 1960s to about 40 per cent in the 1980s. At present the extent of union organization in Canada is about double that in the United States; in 1986, 38 per cent of non-agricultural paid workers were union members in Canada versus 18 per cent in the United States. This difference between the two countries in the extent of union organization is a pervasive phenomenon. Whether one examines the proportion unionized by industry, occupation, age, sex, education or by full-time versus part-time employment, union density is substantially lower in the United States and is generally about half that of the corresponding level in Canada [see Kumar, et al., 1986].

There has been quite a bit of research on the reasons for the decline in unionism in the United States [Dickens and Leonard, 1985; Farber, 1985 and 1987; R. B. Freeman, 1985 and 1988*a*; Goldfield, 1987; Lipset, 1986; Meltz, 1985; Rose and Chaison, 1985]. The juxtaposition is useful because developments which have occurred in both countries – which is the case for many of the factors put forward as explanations of the decline in unions in the United States – are clearly unable to account for the differences in the two countries' experiences. For example, it is often suggested that much of the decline in union density in the United States can be attributed to structural changes in the composition of the labour force – in particular, the decline in relative importance of traditionally highly unionized industries (manufacturing), regions (northern states), occupations (blue-collar), and types of workers (males, full-time employees) and the concomitant rise in the relative importance of industries (private-sector services), regions (southern states), occupations (white-collar), and types of workers (females, part-time employees) with traditionally low levels of union organization. However, these structural changes also occurred to a similar extent in Canada [Meltz, 1985; Lipset, 1986].

This does not imply that the changing composition of the labour force has not had important implications for the union movement in both countries. Substantial differences exist in the extent of union organization by industry, occupation, firm characteristics; and worker characteristics. Shifts in the composition of the labour force away from workers and firms with a high propensity to engage in collective bargaining will lead to declines in aggregate union density if other factors remain constant. The challenge is to explain why Canadian unions were able to achieve increases in the extent of organization among the "hard to unionize" workers and sectors which were growing in relative importance, thus offsetting the tendency for aggregate union density to decline, whereas U.S. unions were unable to achieve similar gains. This is the sense in which the changing composition of the labour force is unable to provide a satisfactory explanation for the differing patterns of union growth in the two countries.

Similarly, Neumann and Rissman [1984] have argued (and provided some empirical evidence to support their hypothesis) that the decline in unions in the United States is related to the rise in the welfare state and changes in judicial interpretation of the employment contract (specifically the doctrine of "employment at will"). These changes have provided to unorganized workers forms of benefits and protection which are close substitutes for those that could have been obtained through collective bargaining, thus reducing their demand for collective representation. This explanation also faces the difficulty that unions have grown in importance in Canada (and, indeed, elsewhere) at the same time as marked improvements in social programs and in employment standards legislation, as well as restrictions on "employment at will," took place.

The Canada-United States comparison is clearly useful for ruling out – or at least questioning the importance of – developments which occurred in both countries, thus significantly reducing the number of competing explanations for the decline in unionization in the United States. Nonetheless, even after a comparative analysis has been carried out, different schools of thought remain regarding the primary cause(s) of the decline in unions in the United States and the divergent patterns of union growth between Canada and the United States. Two leading explanations of the divergence are discussed here. The first, associated with R. B. Freeman [1985 and 1988*a*] and Weiler [1983 and 1984], among others, holds that differences between the two countries in the legal regime governing unionization and collective bargaining and the much stronger management opposition to unions in the United States – an opposition which the legal regime allows to have a significant impact – are the main causes of the divergence in union growth. An alternative view, associated with Lipset [1986], explains the divergence in terms of differences in basic values in the two countries, with Americans placing more value on individual freedom and free enterprise and Canadians placing more value on collective organization and the role of the state.

These two perspectives are not completely independent of each other because both management opposition to unions and the nature of the legal regime reflect, to some extent, societal values. Nevertheless, these two perspectives do differ sharply in their implications.

According to Lipset's basic-values view, the period 1937-47, during which there was an enormous increase in union density in the United States, was a temporary aberration brought on by a huge shift in public sympathy towards the labour movement associated with the Great Depression. Following World War II, the U.S. public returned to their traditional values, and unions gradually declined in importance. In contrast, Canadian views were influenced not only by the Great Depression, but also by the United Kingdom and European experience of a strong labour movement and an influential social democratic party.

According to this view, a low level of union density is a normal state of affairs in the United States, whereas a much higher level is the norm in Canada. The basic values of the respective societies affect workers' desires for collective forms of representation and affect managements' acceptance of unions, as well as the legislative and administrative framework which governs the relationship between labour and management. If this view is substantially correct, the long-run outcome will be a marked difference in union density in the two countries. Although this difference will create pressures for change of the sort Freeman discusses, the difference will remain, with the exchange rate adjusting for any differences in labour costs associated with unionization.

In contrast, according to the Freeman-Weiler view, the differences in unionization are due not to underlying fundamental factors such as basic values, but rather to aspects that are potentially more subject to change: management opposition to unions and the legal regime governing unionization and collective bargaining. The procedures governing union certification and negotiation of the first collective agreement have received the most attention. This perspective therefore suggests that the Canadian union movement is more subject to erosion, especially in an environment in which there is increased competitive pressure on management to reduce costs. This erosion is more likely to occur if there are changes in labour legislation which make union organizing more difficult.

Although there is some evidence supporting both views, my assessment is that the Freeman-Weiler view is more consistent with the available evidence. Several reasons can be put forward for this judgment. Perhaps most important, Lipset, the main proponent of the basic-values view, relies heavily on data from U.S. public opinion polls which show a decline in public support for unions during the past three decades and which also show that unions (and especially union leaders) are currently held in low esteem. However, a similar decline in public support for unions has taken place in Canada since the late 1950s [Chaison and Rose, 1988; and Riddell, 1986*b*]. Furthermore, the current level of public confidence in unions and their leaders in Canada is as low (indeed, appears to be somewhat lower) as in the United States [Chaison and Rose, 1988; Johnston, 1986; and Riddell, 1986*b*].

Another factor is that recent changes in labour legislation in British Columbia – changes which involve moving closer to the U.S. model for union certification and decertification – do appear to be having the effect of retarding union growth, as the perspective which stresses the importance of the legislative environment would predict.

A third factor is that unfair labour practices – a measure of illegal management opposition to unions – although low by U.S. standards, have grown significantly in Canada during the past 10 to 15 years [Chaison and Rose, 1988]. This suggests that increased management opposition to unions is not purely an American phenomenon.

In summary, the evidence supports the view that the divergence in union growth between Canada and the United States is due largely to the greater opposition to unions displayed by management in the United States and to the more favourable legislative environment within which the Canadian labour movement operates. Unless these underlying factors change significantly, Canada is unlikely to follow the United States along the de-unionization path, and the importance of unions in the labour markets of the two countries is likely to continue to differ substantially. This conclusion is further supported by the observation that the two countries have displayed contrasting patterns of union growth for the past three decades without any clear tendency for Canada to begin to follow the U.S. pattern.

This analysis suggests that the Canadian union movement is likely to remain healthy, in contrast to its American counterpart. Nonetheless, there are some pieces of evidence which point in the other direction. One is the rise in unfair labour practices in Canada, as previously mentioned. Also previously mentioned is the decline in public support for unions during the past three decades and the low esteem in which unions and their leaders appear to be held by the Canadian public. In addition, in western Canada there have recently been legislative changes which will make union organization more difficult. In particular, changes to the respective labour codes of British Columbia in 1984 and Alberta in 1988 replace the previous certification procedures (which provided for automatic certification upon the signing of cards by a majority of the workers) by a secret ballot, thus moving in the direction of U.S.-style certification procedures. These two provinces also passed legislation which encouraged union/non-union competition in the construction industry, following which there has been significant growth in the share of construction accounted for by non-union contractors. A final factor is the size of the wage differential between union and non-union labour. A recent study [Riddell, 1988] has estimated this differential to be approximately 20 per cent for the economy as a whole, a level which may result in resistance to unions or union demands for wage increases on the part of Canadian management, especially if the economic environment becomes increasingly competitive. R. B. Freeman [1985] found that growth in the union/non-union wage gap in the United States was a significant factor in the rise in management opposition to unions in that country.

This discussion of the future course of the union movement in Canada has emphasized the role of external factors. A variety of internal factors will also exert some influence on these outcomes. Perhaps potentially most significant is the Charter of Rights and Freedoms. In general terms, the Charter is a statement of individual rights and freedoms. There is, therefore, a potential conflict with the collective rights associated with unions and collective bargaining in labour legislation and practice. In addition to the eventual interpretation of such concepts as freedom of association, decisions in the discrimination area (section 15 of the Charter) such as the forthcoming mandatory retirement decision may well have significant implications for unions.

Employment Growth in Europe and North America

Another important development noted by Freeman is the very substantial difference in macroeconomic performance among OECD countries since the early 1970s, and, in particular, the much greater growth in employment in non-European OECD countries (with some notable exceptions such as Sweden) than in Europe. The causes of these differences have been the subject of a great deal of research and analysis. As Freeman notes, the evidence indicates that countries which were able to restrain real wage growth were most successful in terms of employment growth and reducing unemployment. For this reason, there has been a good deal of attention to wage flexibility – as a means of enabling the economy to respond better to various disturbances.

Freeman draws two main conclusions from his analysis of this issue:

1 Union density does not appear to affect economic performance. Sweden, a country with extremely high density, performed as well as the United States, a country with a low level of union organization.

2 Capitalist countries have a great range of choices in responding to exogenous shocks. Thus it is important to engage in long-term strategic thinking about the best mode of adjustment and, in particular, about the trade-off between employment growth and real wage growth.

Although I do not dispute these conclusions, both are potentially misleading without some elaboration. With respect to the role of union density in affecting macroeconomic performance, if countries are ranked according to both the degree of centralization of wage bargaining and union density, the countries at the extremes did best: Sweden, with very centralized bargaining and high union density, and the United States, with very decentralized bargaining and low density. Canada, with highly decentralized bargaining but with a moderately high level of union organization, did less well than the United States, as did other countries in between the two extremes. Thus there appears to be empirical support for the view that Canada, with its very decentralized structure of collective bargaining (a feature that does not appear amenable to change in any significant way – see Davies [1986]; and Riddell [1986*b* and *c*]) would adjust better to economic shocks if union density were lower. This issue warrants further research and investigation. In particular, if Canada wishes to retain or increase the current extent of union organization, then the question arises as to what alternative mechanisms could be employed to enhance wage flexibility at the macroeconomic level. The options could include shorter wage contracts in the union sector, less wage indexation, more synchronized negotiations, and flexible forms of compensation such as greater reliance on bonuses or profit sharing.

An alternative way of expressing this point is as follows. If one of the two extremes of Sweden on the one hand or the United States on the other is desirable for macroeconomic performance, then the United States is the only feasible option for Canada. However, there may be ways other than de-unionization to achieve the degree of wage flexibility characteristic of the United States in recent years.

In this connection, Freeman points to the recent Australian experience with wage restraint (the "Accord") as a possible example of the type of innovative approach that may be useful for Canada. Whether or not this would be a desirable approach, it is simply not feasible in Canada. Our history of attempts at voluntary wage and price restraint makes this unfortunate conclusion clear. (For an elaboration of this claim, see Riddell [1986*c*, pp. 63-72].) If programs of wage and price restraint are again needed in Canada – and sadly it must be admitted that this is likely – the innovations, if any, will be in the way governments implement incomes policies of a statutory nature rather than in the achievement of a voluntary tripartite agreement.

This section of Freeman's paper would also have benefitted from devoting more attention to recent Canada-United States differences in macroeconomic and labour market performance. The large differential in the two countries' unemployment rates that emerged in the 1981-82 recession and that has persisted throughout the subsequent recovery is a particularly significant development, given the close relationship between the two countries' unemployment rates prior to the early 1980s.

The Changing World Division of Labour

Freeman's discussion of the changing world division of labour between developed and less-developed countries is one I largely agree with, though clearly there is uncertainty and thus room for differences in opinion about how long the debt crisis will slow down this process.

In this regard, the most significant and provocative claim is that highly skilled and educated Canadian labour is likely to be complementary in production with low-skilled labour in less-developed countries, so that increased employment of low-skilled workers in LDCs will also increase demand for skilled labour in countries such as Canada. I believe this is the sort of relationship people have in mind when they talk about the evolution to a knowledge-based economy.

Perhaps more than any other, this aspect of Freeman's paper warrants further investigation. There is a significant difference between complementarity in production of low- and high-skilled labour in the same location and part of the same production process and such complementarity ranging across countries.

Conclusion

The authors were told to be speculative and to rely on their informed judgment rather than to be tied to a detailed empirical analysis. Freeman has followed this advice, and the result is a wide-ranging and provocative paper which describes a number of significant developments occurring in the world labour market and speculates about their implications for Canada. Clearly, a great deal more could be said about any one of these developments. It is not a criticism to note that Freeman's paper raises issues rather than attempting to resolve them.

Any attempt to focus on a small number of salient developments must necessarily neglect some issues that might well have received attention. Several such omissions are worth noting. The dramatic and continuing rise in female labour force participation is another important development, one to which society has not yet fully adjusted. Immigration will continue to play an important role in the Canadian and world economies, and immigration policy will likely be a contentious area. Finally, the way in which society deals with (and who bears the cost of) adjustment to economic disturbances will quite appropriately remain an area of considerable research and debate.

8 Looking to the Year 2000: Challenges for Industrial Relations and Human-Resource Management

Thomas A. Kochan

The pressures for change on the Canadian, U.S., and other advanced industrialized economies in recent years have posed fundamental challenges to many traditional industrial relations and human-resource management policies and practices. Increased global competition, the shortening of product life cycles, the greater differentiation within product markets, the growing importance of product quality and innovation, the volatility in currency values and commodity prices, the availability of new information and manufacturing technologies, and the changing demographics of the labour force are all demanding changes in employment practices. These pressures translate into demands on industrial relations systems for: 1) labour cost moderation; 2) improved productivity; 3) flexibility in the use of human resources; 4) a highly motivated and multi-skilled labour force; and 5) sustained innovation in labour management relations at the level of the enterprise.

The traditional industrial relations policies and practices in both Canada and the United States grew out of the very different set of economic and social needs of the 1930s and 1940s. The primary concerns of the collective bargaining and personnel management institutions that evolved out of the earlier environment were to: 1) provide workers with the collective rights needed to improve their wages and working conditions; 2) establish bargaining and conflict resolution procedures needed to achieve labour peace and stability; and 3) diffuse professional personnel management practices across organizations. These functions continue to be important. However, industrial relations systems are now under pressure to perform these traditional functions *and* meet these new expectations.

Given the changing nature of the economic and social pressures on industrial relations systems, it is not surprising that the 1980s have been a period of considerable experimentation with new practices. Consider, for example, the following description of events in the United States:

> The early 1980s witnessed a significant change in the U.S. system of collective bargaining and industrial relations. Front page news stories frequently cited labor concession in collective bargaining that departed from the pattern of improved wages, fringe benefits, and job security to which the American public in general and union members in particular had become accustomed. Highly regarded business periodicals dwelled on the advent of new forms of labor-management cooperation at the workplace – so much so that some proposed that a 'new industrial relations' had overtaken the U.S. economy. But at the same time the cumulative effects of more than twenty years of declining union membership made it apparent that the American labor movement has reached a crisis. [Kochan, et al., 1986, p. 3]

While experiencing similar pressures, the institutional responses of the industrial relations systems of Canada and the United States appear on the surface to be somewhat different. The impression is that the Canadian system has been more stable than its U.S. counterpart [Adams, 1988*a*] Yet few, if any, analysts believe that the pressures for change will dissipate in the future. This is giving rise to an interesting and important debate in Canada: Is the Canadian system destined to follow the U.S. pattern? Or, are Canadian industrial relations practices sufficiently responsive to current pressures and therefore likely to withstand calls for more fundamental changes? Or, alternatively, will Canadian industrial relations adapt in different ways?

This paper will review the responses of industrial relations in Canada and the United States. This comparative analysis will then be used to explore the challenges that the parties to Canadian industrial relations are likely to face in the future.

Two perspectives will guide the analysis to follow. The first is a perspective on the role that industrial relations and human-resource practices will play in the future of advanced industrialized economies such as Canada and the United States. The second is a theoretical perspective about how to make projections into the future of industrial relations practices.

Advanced economies such as Canada and the United States now operate in an international environment where they must seek comparative advantage through development and utilization of their human resources. Failure to do

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I would like to thank Richard Chaykowski for his comments on an earlier draft and Peter Mendel for his helpful research assistance.

so will result in a gradual reduction in the standard of living for most workers and an increased inequality in income and social welfare. Only by developing and fully utilizing both advanced technologies and human resources can our economies achieve the twin objectives of sustained improvements in productivity and real incomes. In turn, achieving these twin objectives will require a continuation, diffusion, and institutionalization of many of the experiments and innovations introduced in selected employment relationships in the past decade. However, there is no guarantee that these innovations will diffuse in a natural way. Therefore, in what follows, emphasis will be given to an assessment of the innovations and a discussion of the factors that are likely to influence their diffusion to broader employment settings.

History teaches us that industrial relations researchers should be exceedingly careful about predicting the future course of events, given the dismal record of past projections. No labour scholar of the 1920s, for example, predicted the rapid rise of unions in the United States in the 1930s. Nor did anyone in the 1950s forecast the explosion of public unions in the 1960s or 1970s in either Canada or the United States. These examples suggest that simple extrapolation of past trends fails to capture changes in practices that tend to occur during periods of significant environmental turbulence. Nor can we simply assume that Canadian and American industrial relations will follow similar developmental paths. This has been shown most clearly in the divergence between union density rates in Canada and the United States between 1950 and the present [Meltz, 1985, pp. 315-34].

The theoretical lesson to be drawn from this and other evidence is that looking to the future can best be done through a model that allows for a range of discretion or choice in the responses of firms, government policy, labour unions, and individual workers, to environmental changes [see Kochan, et al., 1986]. Thus in what follows we adopt a strategic choice perspective to analysing the future of industrial relations and human-resource practices. This is done by focusing on the *interactions* between a set of readily observable environmental trends and pressures and the strategic choices or responses of the key parties in the industrial relations system. The assumptions about the environment of the future that we start from are as follows: 1) the internationalization of economic competition will continue to intensify; 2) the pace of technological change will accelerate or at least continue at the rapid pace of the 1980s and become an increasingly important strategic variable for individual firms and national economies; and 3) the work force of the future will become more diverse in demographic characteristics, skill mix, values, and employment patterns. In the following sections we will take up each of these environmental trends and discuss the range of options open to employers, unions, and government policymakers in responding to them. In doing so, special attention will be given to a discussion of the research needed to better track and understand the interactions of these environmental trends and strategic responses.

Environmental Trends and Their Effects

Internationalization

International competition has become an important catalyst for changes in industrial relations practices in both Canada and the United States. In 1986, 22 per cent of GNP in the United States was accounted for by the sum of exports and imports, compared to only 10 per cent in 1960. The comparable figure for Canada was 60 per cent in 1986, compared to 40 per cent in 1960. Thus, the Canadian economy has always been fairly highly exposed to international trade. Approximately 75 per cent of Canada's trade is with the United States. These trends are likely to continue in the future. Indeed, competition between U.S. and Canadian firms will increase further if the Canada-U.S. Free-Trade Agreement is put into effect.

Yet the industrial relations institutions in both countries evolved in response to *domestic* not *international* competition. The challenge was to minimize employment losses due to wage competition within domestic product markets. As will be discussed below, the type of competitive threats workers and unions now face from international sources is more complex, involving not only competition over wages and labour costs but also on the capacity to innovate.

The conventional and still most profound effect of international competition is to threaten the stability of industrial relations by making it more difficult to "take labour costs out of competition" through traditional means, namely, through the spread of unionization, pattern bargaining, or public policies that set a floor on labour standards. For highly industrialized countries such as Canada or the United States, with work forces that demand high standards of living, firms facing an open economy will therefore find it difficult to compete on the basis of low labour costs.

Theories of comparative advantage predict that, faced with a labour-cost disadvantage, a firm will simply lose market share to competitors operating in lower-cost regions. This effect will be most pronounced in labour-intensive industries where price competition dominates. However, in reality, labour costs vary in importance to total costs, price elasticity varies considerably, and high labour-cost firms have a number of strategic alternative courses of action to consider. While a high labour-cost firm may in the end experience a loss of market share and lower employment levels, it can also seek to lower labour costs through gradual wage moderation or abrupt concessions, accelerate the pace of automation to reduce labour inputs, reallocate its resources and leave the market entirely to the lower-cost producers, or seek comparative advantages through other means such as by identifying market niches that can be served through advances in product design, marketing, technology, or superior product quality. Finally, a firm might form alliances with foreign producers to obtain some or all of its products from lower-cost regions.

While these strategic options are not neutral with respect to their impacts on industrial relations outcomes, traditional industrial relations structures and processes were not designed to cope with this array of competitive options. Instead, collective bargaining and/or personnel professionals and institutions have generally been relegated to cope with the impacts of these strategic choices after they have been made by higher-level executives, or as they evolve *in response* to market shifts. Consequently, an important effect of intensified international competition has been to highlight the gap between strategic decision making and traditional industrial relations practice. It is not surprising then that a good deal of the experimentation with changes in industrial relations practice that has occurred in recent years reflects efforts to respond to these competitive pressures by closing the gap between these two levels of decision making. In the end, however, unless these efforts are combined with corresponding improvements in productivity, real wages and employment can be expected to fall. Let us now examine how the U.S. and Canadian systems have adjusted to these pressures to date.

Labour-Cost Moderation

The effect on industrial relations that is most expected from intensified product market competition is to induce firms to moderate wage growth and employment costs. This has clearly been the case in labour-intensive U.S. industries that have been exposed to growing imports for an extended period of time. For example, employment in U.S. apparel fell by 700,000 between 1960 and 1987, while average hourly earnings in apparel fell from 73 per cent of the average manufacturing wage in 1968 to 61 per cent in 1982 [Parsons, 1988].

More generally, studies of wage determination in manufacturing have shown that both wages and employment have fallen in import-sensitive industries over the course of the past two decades [Vroman and Vroman, 1987]. And in the 1980s, wage growth moderated further, extending beyond import-sensitive industries to other major bargaining units. Estimates of the magnitude of this moderation vary from an average of 1 to 3 per cent below the "norms" of wage behaviour exhibited in collective bargaining in the previous decades [Mitchell, 1986; Kochan and Vroman, 1988]. These same studies showed a reduction in the wage premium produced by centralized bargaining structures and/or pattern bargaining, thereby lending support to the conclusion that the intensified competition of the 1980s led to a decentralization of wage bargaining, and a focusing of wage determination on the conditions of individual bargaining units or enterprises [Freedman and Fulmer, 1982].

Similar downward adjustments in wage outcomes have been observed in Canada since 1982. Kumar [1987*b*] has shown that annual rates of collective bargaining settlements reached their lowest point in 25 years in 1984-85. Compared to wage bargaining in the United States, Kumar concluded the Canadian response was somewhat slower in developing but at least equally broad-based and long-lasting. Although he finds similar patterns in the processes of downward adjustment (i.e., less emphasis on cost-of-living clauses, less pattern bargaining, more wage freezes and bonuses), he does not find evidence of a significant structural shift in wage bargaining beyond what a modified Phillips curve model would predict.

Whether this moderation and shift away from the influence of centralized and pattern bargaining will continue into the future in either the United States or Canada is still a hotly debated issue. Clearly, this is one of the issues that the strategies of the parties will influence.

One set of strategies for reducing the labour-cost pressure that has gained attention is to shift from fixed-wage adjustments or adjustments that move with macroeconomic conditions (as do cost-of-living escalators) to various bonus or contingent payment systems. Indeed, in both Canada and the United States there has been some shift from wage standardization and fixed-payment systems to lump-sum bonuses that are not built into the wage structure. There also has been some modest growth in the number of compensation schemes that link wage adjustments to firm, establishment, or work-unit specific movements in profits or productivity and individual worker skill attainment. For example, a survey of Canadian establishments, the Working with Technology Survey (WWTS), found profit sharing in 25 per cent of its sample, gains sharing in 10 per cent, and pay-for-knowledge plans in 8 per cent of the sample establishments. In theory, such compensation structures, if diffused broadly, should have favourable effects on macro as well as microeconomic performance. That is, contingent compensation systems should help expand employment and control inflation [Weitzman, 1984].

Profit sharing has been implemented as a *quid pro quo* in a number of key U.S. industries and firms, most notably in steel and autos. But most union leaders remain skeptical of profit sharing unless it can be introduced as a supplement rather than a replacement for fixed-wage adjustments based on intra-industry or labour market comparisons, or in addition to cost-of-living (COLA) escalators. Canadian union leaders have been even more strongly opposed to profit sharing, as was illustrated vividly in the 1984 auto negotiations. While the U.S. auto workers chose to accept a package that contained strengthened employment security provisions and profit sharing in return for modifications in the traditional wage and cost-of-living formula, the Canadian union chose to continue with the fixed-adjustment formula.

While many economists continue to promote the spread of contingent compensation because of its favourable economic features, most industrial relations scholars do not expect broad diffusion of these pay practices unless complementary changes in management practices are achieved that gain and sustain workers' trust and confidence in these pay systems. Two changes are cited most often.

First, contingent pay systems require a sharing of greater information on current financial performance and future business plans. This in turn opens the door to questioning of these data and plans by workers and/or their representatives, and thereby joins the debate over whether worker representatives should have an active presence in the managerial decision-making bodies and processes in which these plans are designed and administered. In the absence of more open access to information and an opportunity to influence these plans, workers and union leaders are likely to continue to prefer contractually specified and fixed-wage adjustments.

Second, contingent compensation systems sharpen concerns over internal equity, particularly concerns over differential treatment of executives and the rest of the salaried and hourly work force. This has been vividly illustrated by the recent sequence of events in U.S. auto negotiations. In 1982 and again in 1984, years in which General Motors bargained hard with the United Auto Workers (UAW) to set aside their traditional wage adjustment formulas and accept a profit-sharing plan, GM's announcement of executive bonuses created a strong outcry from UAW leaders and members. In later years, this outcry continued since the GM profit-sharing formula produced only small annual bonuses for rank and file workers while executive bonuses continued. The pressure from blue-collar workers led GM to modify its executive bonus formula in ways that reduce the weight given to short-term profits and increase the importance of longer-run objectives. In 1988 bargaining, Chrysler and the UAW joined this issue directly. The parties negotiated a contract clause that ties executive compensation adjustments to the rank and file profit-sharing formula. Executives will not receive bonuses in years where the company's performance fails to yield profit-sharing bonuses for blue-collar workers.

North American employers have long been criticized for the large salary differentials that separate top executives from middle managers and hourly employees. These differentials tend to be considerably larger than those found in Japan or in most other European countries. Moreover, the gap widened in both Canada and the United States in the past decade. In the United States, for example, since 1981, compensation for chief executives increased at an annual rate of approximately 10 per cent compared to increases of 5.9 per cent for lower-level managers and executives and 4.4 per cent for blue-collar workers [Hay Report, 1988; Bureau of Labor Statistics, 1988]. The same trend was observed in Canada, although the differentials were not as great. Compensation increased for senior executives 14.3 per cent annually between 1975 and 1987 compared to 9.9 per cent for lower-level managers and 7.8 per cent for production workers [Kumar, et al., 1986]. These widening pay differentials therefore make it all the more difficult to generate blue-collar worker and union leader support for contingent compensation arrangements.

All these data suggest that while *pressures* for wage moderation will continue in both Canada and the United States and will be especially felt in industries open to international competition, countervailing equity and real income pressures are also building within both countries. Whether new compensation practices that involve contingent pay and new institutional arrangements that support such payment schemes spread to broader settings will depend on the willingness of management and labour to implement the institutional changes and reforms needed to support such plans. At this juncture, there seems to be little enthusiasm on the part of either labour or management leaders to make these changes.

No one expects that wage moderation or shifts to contingent payment structures alone would be sufficient to cope with international competition. The size of the gaps between manufacturing wages in Canada or the United States and newly industrialized countries such as Mexico (10 per cent), South Korea (13 per cent), or Taiwan (16 per cent) cannot be closed by slower growth in wages or by changes in wage structures alone. More significant structural and strategic adjustments are required, most of which again challenge traditional industrial relations patterns and institutional practices. We now turn to an examination of experience with these to date.

Strategic Restructuring

The most widely discussed strategic response to a comparative disadvantage on labour costs is to seek comparative advantage through product differentiation or market segmentation by producing goods and/or services that can demand a price premium. A shift to this strategy requires considerable adaptability and flexibility in all aspects of organizational behaviour, including industrial relations and human-resource practices [Piore and Sabel, 1984]. Firms that emphasize these strategies can be expected to seek flexible work organization practices, cooperative relations both among workers, technical staff, and managers within organizations and among organizations in the value-added chain, and a high-quality work force that can make effective use of advanced technologies. We will discuss the role of these individual relations attributes more intensively in the next section when we focus on the role of new technologies; however, we note them here because their importance is reinforced by the pressures international competition puts on U.S. and Canadian organizations to sustain comparative advantage in areas other than equalization or minimization of labour costs.

In reality, it is seldom a discrete choice between competing on the basis of flexibility, market segmentation, and high quality or on the basis of mass production of low-cost standardized goods. Instead, strategic restructuring cases usually involve *both* efforts to reduce labour costs by trimming employment and by restructuring human-resource and industrial relations policies to improve quality, flexibility, and adaptability. Consider one of the cases cited as a successful example of strategic restructuring and implementing many of these changes: the Ford Motor Company.

In the early 1980s, Ford experienced a deep economic crisis that threatened its very survival as a worldwide auto manufacturer. In response, Ford:

1 Drastically reduced its labour force by about 42 per cent from its peak level of employment in the 1970s.

2 Negotiated a new labour agreement with the UAW that introduced profit sharing, new employment security provisions such as a job bank, and guaranteed income stream for senior workers permanently laid off because of technological change, plant closing, or other corporate restructuring actions.

3 Endorsed and expanded its commitment to working with the UAW to promote employee involvement, statistical process control, and quality improvement efforts.

4 Established mutual growth forums for communicating with workers and union leaders at plant and corporate levels.

5 Greatly expanded its training and education programs.

In addition, changes were made in the structure of the managerial and technical organizations to facilitate the use of cross-functional teams to speed the introduction of key new products (such as the Taurus and Sable models) on which the company was to depend for its economic recovery. Relations with suppliers were revamped by reducing the number of suppliers, developing longer-term contracts, and working intensively with suppliers to both reduce costs and to raise quality and service delivery performance [Locke, et al., 1988]. Thus significant corporate restructuring involves both major employment reductions and adjustments as well as innovations in industrial relations and human-resource practices. The question this and similar examples pose for both researchers and policymakers is: how many firms and unions are willing and able to integrate and manage corporate restructuring and industrial relations policies in this way?

The Canada-U.S. Free-Trade Agreement

The most immediate question concerning internationalization relates to the potential effects of the proposed Canada-U.S. Free-Trade Agreement. The macroeconomic estimates of the effects of the agreement on the Canadian economy vary from slightly positive [Wigle, 1988] to somewhat positive [Cox and Harris, 1986]. These macro estimates are of little value, however, for anticipating the impact of the agreement on industrial relations in specific firms or industries. Moreover, since the macro models are based on assumptions of perfect adjustment of labour and capital resources, they ignore the very issues that labour and management representatives worry most about, namely, the costs of adjustment to current Canadian workers and employers.

Canadian labour leaders are strongly opposed to free trade with the United States largely because they fear it will intensify cost competition and thereby will lead to a more aggressive managerial approach to industrial relations. This could happen either through a change in the outlook and practices of Canadian managers or through an increase in the influence and/or rate of entrance of U.S. employers in Canada. In either case, the fear is that the experiences of non-union competition and deregulation that have created strong pressures on unions and collective bargaining in the United States could be exported to Canada.

These concerns are very likely well grounded. However, they are based on the premise that the dominant form of competition between Canadian and U.S. firms is interindustry competition based on relative factor prices (labour costs). Yet some have argued that, given the similar stages of development of the Canadian and U.S. economies, the biggest increases in trade may be of the intra-industry variety. In this type of trade, the competitive threat comes less from factor cost advantages than from a competitor's ability to adapt quickly to meet specific needs of different market segments or to develop and effectively utilize advanced technologies. Thus one effect of the free-trade agreement might be to further increase the importance of those industrial relations attributes that support these types of strategic adjustments. If this is the case, the free-trade agreement will intensify the pressure on Canadian labour and management to engage in the types of strategic restructuring described above and the processes of organizational innovation discussed below as essential in firms that seek to gain competitive advantage from advanced technologies.

New Technology

Adjustment to technological change has been an ongoing feature of both the Canadian and U.S. industrial relations systems. Collective bargaining agreements in both countries contain a wide variety of employment and income security provisions to deal with the *impacts* of technological change. One can legitimately ask, therefore, is there anything new or special about the current wave of innovations in technology that requires new responses or significant institutional reforms? Or is it simply that the *pace* of technological change has intensified because of innovations in microelectronics?

Clearly, no one discounts the importance of continuing to expand the standard provisions for coping with the impacts of new technology. Indeed, these provisions are likely to take on increased importance in collective bargaining and human-resource planning in the future. Yet, there is growing theoretical and empirical evidence to suggest that significant changes in organizational and industrial relations practices will be required if technology is to be exploited as a strategic resource. The central proposition in this theory is that the full potential of new technology can only be reached by adopting new organizational forms that effectively integrate technology and human-resource strategies and practices. Unfortunately, as the results reviewed below will suggest, American firms have not yet done well in applying this proposition. Data from the auto industry provide a snapshot of this evidence.

A number of studies have shown that the best performing auto manufacturing plants are not those that employ the most sophisticated technology. In an early study, for example, Krafcik [1988] showed that the Toyota-GM joint venture known as NUMMI (New United Motors Manufacturing Inc.) achieved higher productivity and quality levels than both traditional industrial relations/low-technology plants and traditional industrial relations/high-technology plants. This was the case even though NUMMI employed significantly less new information and robotic technology than the most advanced plants in the United States. Later research, drawing on a broader sample of U.S., Japanese, and European plants, verified this preliminary conclusion by showing that plants that used a combination of human-resource and manufacturing process innovations such as team forms of work organization, statistical quality control, and decentralization of quality control to production line workers contributed more to explaining variance in productivity and quality performance than did the extent of robotics technology found in the plant [Krafcik, 1988]. Using a different methodology, Loveman [1988] and Roach [1987] both concluded that investments in information technologies have achieved very poor economic returns compared to other forms of capital investment. Thus, together these studies provide empirical support to the proposition that investment in technology alone is unlikely to provide the economic benefits needed to gain strategic advantage.

A better theoretical understanding of these results has begun to emerge from a number of qualitative case study comparisons of U.S.- and Japanese-managed auto assembly plants operating in Canada and the United States. Shimada and MacDuffie [1987], for example, use a concept of "humanware" to capture the interdependence between the technical and human-resource systems observed in Japanese manufacturing systems. They argue that manufacturing processes such as just-in-time inventory systems, small lot production, and decentralization of responsibility for quality control to production workers, all depend on achieving human-resource inputs of high levels of skill, training, motivation, and participation. A key design feature of these manufacturing processes is that technology is broadly defined to encompass these human-resource dimensions. They describe this as a "fragile" production system since it depends on maintaining high levels of performance from the human-resource management system. In contrast, the traditional North American approach to manufacturing policy has been to minimize variability through machine control and provision of buffers against human-resource system variability (i.e., extra employees to cope with higher absenteeism, buffer inventories to protect against delivery bottlenecks, sophisticated quality-control inspection systems and specialized personnel to catch defects after production is completed or as parts enter a plant from an external supplier, and so on).

Successful integration of manufacturing and human-resource strategies generally argues for a moderate, incremental approach to new technology investments thereby ensuring that the work force is ready to accept and absorb the new approaches. This point was emphasized in an interview with the manager of a new Japanese-owned assembly plant in Canada. He described this plant as approximately 20 to 30 per cent from the "frontier" of potential automation. His strategy was to start with the best "man-machine" combination and to upgrade the manufacturing process incrementally from there as opportunities for improving performance were identified. As part of this strategy, each new employee was required to work on the assembly line for a period of time before taking a permanent job assignment. The purpose was to ensure that everyone in the organization understood how cars were built. This was seen as especially important for the engineers who would work on the design and implementation of future technologies and related process improvements.

An integrated approach to technology and human-resource policy also argues for significant involvement of worker (user) representatives at early stages of the technological choice process. Thomas [1988] has shown that in the absence of this early involvement, the requisite sociotechnical principles are not likely to be taken into account.

The concepts that underlie the Shimada and MacDuffie model are not entirely new. Indeed, to some extent, they build on assumptions similar to those found in sociotechnical design models [Economic Council of Canada, 1987]. They go beyond these models, however, since sociotechnical models tend to centre in on a single strategy for organizing work – the semi-autonomous work group. A careful analysis of Japanese and U.S. team plant systems indicates that there remains considerable variability in work organization design. In fact, interdependence and coordination of work flow across groups is emphasized more than individual or group autonomy.

Despite the growing awareness of these concepts and despite a number of highly visible examples of the benefits associated with these alternative designs in both Canada and the United States, the evidence to date is that these principles are not diffusing rapidly. Conference Board survey data from U.S. firms reported that between 20 to 30 per cent of new non-union plants are being designed with features such as semi-autonomous work groups [Kochan, et al., 1986]. A recent study in Canada found that only 23 per cent of the firms sampled indicated that labour-management teams participated in the introduction of new technologies [Economic Council of Canada, 1987]. Even within the U.S. auto industry, where the major firms are generally convinced these concepts are essential for achieving their productivity and quality targets, the diffusion process is gradual. Most *new* plants opened or retrofitted in recent years by GM, Ford, Chrysler, or Japanese firms have introduced these principles. However, the majority of existing plants continue to operate with traditional systems.

The above evidence pertains largely to the effects of new technologies on blue-collar work organization. Evidence is mounting, however, that many of the same problems with overspecialization in the organization of work among engineers and technical staff limit the speed of introduction of new product and process technologies. Clark, et al. [1987] have shown that it takes on average 40 per cent longer and 50 per cent more man-hours of engineering to design a new model in U.S. auto firms than in Japanese auto firms. Mansfield [1987] reaches a similar conclusion based on data from a broader sample of industries. His estimates show that while there is wide variability across industries, on average, U.S. firms take approximately 12 per cent longer than comparable Japanese firms to introduce new products. Based on a comparative study of engineering processes in Japanese and U.S. computer firms, Westney [1986] argues that part of the Japanese advantage may lie in differences in the organization of internal labour markets in the two countries. For example, compared to their American counterparts, Japanese engineers get exposed to both design and manufacturing activities very early in their careers and can generally expect to move from design to manufacturing as part of their normal career progression. This gives engineers in both functional areas increased awareness and appreciation for the concerns and perspectives of the others and facilitates problem solving in cross-functional groups.

Other studies of the product development process have shown that problem solving and group performance are critical determinants of the performance of product and process development teams [Ancona and Caldwell, 1988; Tyre, 1988; Henderson, 1988]. The Henderson study examined the effects of different patterns of interaction and involvement of users and designers in the various stages of information systems development projects. He found that the best performing design teams were ones where *both* users and information systems specialists exerted high, mutual influence on each other during the problem formulation, solution, and implementation stages of the process. This finding again reinforces the conclusion that effective cross-functional problem solving is as important a requirement of the human-resource management system for white-collar and technical occupational groups as it is for the system that governs blue-collar production workers.

The above examples from the production and engineering activities illustrate the growing importance of learning from other countries and finding ways to transfer practices from one cultural and institutional setting to another. Indeed, the success of the transplanted auto firms (Japanese firms operating plants in the United States and Canada) suggests that transfer of learning is possible. Yet transfer requires more than imitation of the structural principles or institutions. For example, there is widespread agreement among auto industry executives that team forms of work organization similar to team structures commonly found in Japanese manufacturing plants are more efficient than the traditional multiple classification and hierarchical control models found in traditional North American plants. Yet one recent study showed wide variability in the performance of team plants in a large U.S. firm [Katz, et al., 1987]. Further analysis of these data showed that the most successful team plants in this company were once again plants that followed a moderate technology upgrading strategy with a heavy emphasis on worker participation and joint union-management governance processes. The two team plants with these features were among the top productivity and quality plants in the company. The high-technology team plants were among the lowest productivity and quality performers in the company. This suggests that one must again look at the interaction among the technology strategies and the actual problem solving and governance processes at work in the plants. These examples suggest the need for more research on the factors that influence the success of the cross-cultural learning and transfer of organizational innovations and human-resource practices.

Labour Force Developments

An individual firm or a national economy can only gain competitive advantage from effective use of human resources if it has a highly educated, skilled, and adaptable labour force. In the absence of a high-quality labour force, all of the institutional and organizational adaptations in industrial relations discussed in this paper are unlikely to bear fruit.

While, historically, firms in both Canada and the United States could count on this source of competitive advantage, one should not assume this will automatically be the case in the future. Indeed, there is sufficient concern over the quality of education and training in the United States to make this one of the most widely discussed human-resource issues of the day. The warning signs in the U.S. educational system are quite clear: 1) a 25-per-cent high-school drop-out rate; 2) a proportionate decline in college majors in science and engineering; and 3) a weak performance of American students compared to Asian and European students on mathematics and science achievement examinations. Equal but less well documented concerns have been raised about the adequacy of investments in training for those already in the labour market, and especially for blue-collar workers who are most exposed to the risk of permanent job loss due to changes in technology. These concerns arise both out of the evidence on the poor reemployment prospects of displaced workers with little education and/or general training [Kruse, 1988] and the general belief that American firms under-invest in training [Osterman, 1988]. Under-investment is in part thought to reflect the narrow job classifications and rigid rules governing movement in typical U.S. internal labour markets.

Similar concerns have been raised in Canadian policy circles; however, the available evidence seems to indicate that the Canadian education and labour market institutions have performed more effectively than their U.S. counterparts over the past several decades. There is no evidence in the data available, for example, of a decline in the quality of education in Canada or in the proportion of students entering the science and engineering disciplines [J. B. Davies, 1986]. Moreover, Canadian labour market adjustment policies and/or market forces appear to work better than do the U.S., if judged by the proportion of aggregate unemployment attributable to structural versus cyclical causes [Riddell, 1986*a*]. Thus there is some reason to believe that the Canadian labour force is better positioned to adjust to the technical and organizational changes that are critical to the future performance of the economy and to individual employment security and earnings potential.

Considerable concern and uncertainty remains, however, with respect to the adequacy of private-sector on-the-job training efforts. No more is known about the adequacy of the amount, quality, or generalizability of private training in Canada than is known about these efforts in the United States. There is general agreement that private sector training will take on increased importance in the future. Some have argued, however, that government policies have overemphasized support for primary and college education at the expense of continued training for those already in the labour force [Riddell, 1986*a*]. Yet, as in the United States, there is no clear consensus on *how* government can most efficiently spur greater investment in training by workers, firms, and/or unions. Clearly, this is an issue that deserves (and is very likely to get) considerable attention from researchers and policymakers in both Canada and the United States in the years ahead.

The most significant labour force development of the past two decades, in not only Canada and the United States but more generally in all industrialized countries, has been the growth in the number of women in the labour force. Labour force participation rates of women in the United States increased from 36 per cent in 1960 to 56 per cent in 1988. The numbers for Canada are similar: from 28 per cent in 1960 to 54 per cent in 1986. When the increased role of women is combined with the growth in the number of minorities and immigrants, it is clear that the labour force of the future will be more diverse in demographic features than the labour force of the past. Estimates in the United States, for example, indicate that between 1987 and the year 2000 nearly 90 per cent of the new labour force entrants will be women, minorities, or immigrants [Johnston and Packer, 1987]. The diversity poses challenges to industrial relations and human-resource practices since women, minorities, and immigrants have historically experienced difficulty gaining access to those good jobs that will be growing in demand.

The concern over the effects of immigration is especially central in Canada given that over 20 per cent of the Canadian labour force is foreign-born. While a large proportion of these immigrants are from the United States, recent evidence suggests that immigrants' earnings are significantly lower than those of comparable native-born Canadians. This differential appears to be growing, although there is still uncertainty (as in the United States) over the causes of the growth in the differential. A portion appears to be due to a decline in the quality of the recent immigrant cohort; however a portion also appears to be attributable to language deficiencies and other constraints on the ability of immigrants to learn skills required to advance to higher-paying jobs [Hiscott, 1987; Borjas, 1985]. This is similar to evidence from the United States indicating that women and minority youth receive relatively less on-the-job training than their white male counterparts and experience proportionately lower rates of return to the training they do receive [Lynch, 1988]. These results pose significant challenges to policymakers and practitioners alike given the growing consensus regarding the importance of training and lifelong learning to long-term income, and the projected demographic mix of future labour force entrants.

Union and Management Responses

Debates over the future of worker representation are intense in the United States for quite obvious reasons. Since 1960, union representation has fallen from just under one third of the non-farm labour force to under 17 per cent. Less than 15 per cent of the private sector work force is unionized. But even these numbers understate the extent of the crisis facing the American labour movement. Union membership continues to be concentrated in the oldest, slowest growth industries, in the older firms and establishments in these industries, and in occupations that are likely to experience continued shrinkage from technological change. At the same time, traditional union organizing efforts have failed to capture significant numbers of new members among those work groups and occupations that are expanding – women, white-collar workers, and service-sector employees.

Many are quick to point out that the United States is an exceptional case and note that both the historical experience and current situation of the Canadian labour movement are quite different. Union membership in Canada has grown during the same 30-year time period as the U.S. movement has declined. *Overall* membership appears to have remained quite stable even through the tumultuous period of the 1980s. For example, Statistics Canada survey data for 1984 show that 37 per cent of the paid work force is unionized and 42 per cent is covered by a collective bargaining agreement. These overall figures, however, mask some trends that are similar in direction if not in magnitude to the U.S. experience. For example, most of the growth in union membership in recent years has been in the public sector, while union membership in the private economy declined from 33 per cent in 1961 to 28 per cent in 1984 [Betcherman, 1988].

But membership numbers and trends are only one dimension of the challenge facing unions today. Unions in all advanced industrialized countries are undergoing internal debates and self-analyses over how to represent workers in light of the changes discussed in earlier sections of this paper [Kane and Marsden, 1988; Edwards, et al., 1986; Roberts, 1985]. Globalization, new technology, and changing industry and demographic composition along with the strategic responses of employers, are challenging many of the traditional structures and processes of unionism and collective bargaining. Thus the challenges to labour in Canada, as in other countries, lie not only in organizing new members but also in making the adaptations necessary to effectively represent their members' interests. The question, then, is what can we learn from the responses to date of unions to these environmental, political, and employer challenges?

Both Canadian and U.S. union leaders have been criticized for being slow to respond to these pressures to change or to initiate innovations in practice. Instead, management has initiated most of the innovations in industrial relations in recent years. At least three reasons account for the reluctance of North American union leaders to initiate innovations in representation and participation.

First, there is the strong legal and historical tradition of management rights built into our collective bargaining systems: management acts and unions react through negotiation over the impacts of managerial decisions and through the grievance and arbitration procedures. This legal doctrine and tradition of separation of managerial rights from union influence has deterred unions from playing an active role in strategic managerial decision making. Second, at the shop floor North American unionism has followed a "job-control" model of specifying clear lines of demarcation of jobs, detailed rights of workers that are tied to job and union jurisdictions, and in some industries occupational or craft lines. This tradition grew out of the Taylorist concepts and, as noted earlier, applies not only to union members but carries over to engineering and managerial functions as well. Thus flexibility in work organization requires significant departures from this job-control tradition. Third, there is an innate and legitimate lack of trust of management among U.S. union leaders that grows out of the long history of anti-union sentiment within the American management culture. American employers would not only prefer to be non-union, but over the long course of history have been aggressive and successful in developing and pursuing non-union options. This lack of trust is reinforced in the current period by the fact that many of the innovations in work organization and employee participation have been used by non-union firms in part to avoid unionization. Even where union avoidance is not the dominant motive for introducing these innovations, their effect has been to reduce the incentive for workers to organize. Therefore, unions have had no success in organizing these innovative firms. An understanding of this context is critical, therefore, to interpreting the current and future response of union leaders to organizational innovations. Thus a review of the changes in the responses of union leaders may be helpful.

The Evolving Response of U.S. Unions

The initial impetus for a new union response in the United States came in the mid-1970s as the quality of working life movement and related forms of employee participation gained momentum in academic, government, and management circles. Initially, the vast majority of U.S. union leaders were quite skeptical of these early employee involvement or quality of working life efforts fearing that these were simply another managerial fad or effort to undermine union solidarity and support. Union leader skepticism was reinforced by the fact that up to that point, most of these activities were associated with non-union companies and were initiated in part to keep workers from organizing. However, a small number of union leaders did advocate these efforts [see, for example, Bluestone, 1980] and therefore by the early 1980s considerable joint union-management experimentation was under way. Enough experience with these efforts has occurred for union leaders to now take a more careful look at the risks and opportunities posed by employee involvement and related workplace innovations. Moreover, the *scope* and impacts of these innovations have broadened out considerably. Employee participation seldom stands apart from efforts to introduce greater flexibility in work organization, information sharing and consultation at higher levels of the union-management relationship; and in some cases worker and union involvement in the planning of new facilities, or new technologies, or production systems. In fact the most recent surveys now show that the rate of diffusion of employee participation, information sharing, and related workplace innovations is not significantly different between union and non-union plants [Ichniowski, et al., 1988]. Still, however, there is an active debate within the American labour movement over how to best respond to these issues. While some continue to see employee participation and team-based work systems as dangerous departures from long-standing union traditions and principles that should be opposed [Parker and Slaughter, 1988], others see them as potential opportunities for representing worker interests in today's environment [Ephlin, 1988].

The greatest support for innovations is found among leaders at the local and national levels of unions most heavily threatened by foreign competition and where unions have been strong and secure enough to gain a partnership role with management in introducing and administering organizational innovations. Moreover, at the local levels of these unions there is equal diversity in outlooks.

Yet in the midst of this diversity, there is consensus among union leaders on a few basic principles that must be in place if these innovations are to gain their support and are to diffuse to broader settings. First, unions must be accepted by management as legitimate and full partners in the design and guidance of these efforts. Second, there must be a greater acceptance on the part of American management of workers' rights to organize and of the legitimacy of unions in society and in their organizations. Union leaders note that American managers cannot continue to have it both ways – they cannot expect union leader cooperation at the workplace at the same time corporate strategies are designed to oppose unionization of new employees or establishments. Third, union leaders are convinced that changes in national labour policy are required to reestablish a "level playing field" with respect to new union organizing. The emerging view of union leaders therefore seems to be one of recognizing the potential contributions that organizational innovations can play in improving the interests of workers, employers, and the broader economy; however, they would prefer to see these innovations embodied as part of a broader national reform of industrial relations law, ideology, and politics. For these reasons, the extent to which these innovations will diffuse in the future lies to a large extent in the hands of the future political leaders of the country.

Views of Canadian Union Leaders

In the past two decades the Canadian labour movement has gradually separated itself from the AFL-CIO in political strategy, and in the case of several individual Canadian unions, in organizational structure [Adams, 1988*a*]. The close ties of the Canadian Labour Congress and the New Democratic Party, for example, depart from the AFL-CIO's policy of more informal or unofficial ties to the New Democratic Party. Differences can also be seen in the views of Canadian union leaders towards workplace innovations.

A recent interview study [Kumar, 1988*a*] suggests that Canadian union leaders in general are still quite skeptical of the value of many of the organizational innovations in work practices, employee participation, and representation in strategic managerial decision making, and even broad-based tripartite consultation among labour, management, and government officials. Kumar [1988*a*, pp. 8-9] summarizes the views of the 17 top-level union leaders he interviewed as follows:

> Union leaders are convinced that management attempts towards employee involvement, and demands for greater flexibility in work arrangements are nothing but a "misguided desire for a union free environment." They are of the view that "management is more interested in speed up, more productivity than in the worker input." Labor leaders strongly believe in the adversarial system of labor relations citing the fundamentally different roles of union and management at the workplace. Participation in management decision making initiative, according to them, are largely cost driven, motivated by management's desire to abdicate its responsibility by transferring to the union the role of disciplining workers, setting one worker against the other.

As their American counterparts, however, these Canadian union leaders do appear to hold out the option of greater flexibility in view and behaviour in the future, if, in their view, the necessary changes in managerial attitude occur.

> Although labor leaders espouse an adversarial union culture, they are not opposed to cooperation with employers on areas of mutual concern. They believe, however, that cooperation is only possible if employers seek genuine dialogue, share information and are honest in their dealings with the union and the worker. Most labor leaders don't think employers accept the legitimacy of the union. There has been no change in employer attitudes towards workers, they point out. Against this background, they think cooperation is only feasible at the strategic policy level on broader issues like trade, labor adjustment and technology, in situations where collective bargaining relationships are long established and mature, and where there is a strong union representing the industry. Working together is feasible, they believe, if management were seriously committed to the change.

A recent review of workplace innovation in Canada [Mansell, 1988] supported the conclusion that the majority of Canadian union leaders continue to oppose workplace innovations citing in support "anti-QWL" convention resolutions passed in 1982 and 1983 by the Ontario and the British Columbia federations of labour. Yet despite the rhetorical opposition of top union leaders, innovations continue in selected settings with local union leaders as active and in some cases enthusiastic participants and advocates.

Thus, in all likelihood, we will continue to experience a period of intense political debate within both the Canadian and the U.S. labour movements over these innovations. While there seems to be somewhat greater experience with innovations at the local level in the United States, and more national union leaders in the United States see innovations that are properly structured as viable strategies for unions to promote and champion, neither labour movement has developed a coherent and visible program for promoting, supporting, and diffusing these changes.

The lack of strong open support by union leaders for new forms of labour-management relations does not imply that a management-led process of adjustment to new technologies and efforts to introduce greater flexibility in work organization will not occur. Indeed, both survey data and two recent case studies of Canadian firms [Adams, 1988*a*; Chaykowski and Slotsve, 1988] suggest that the introduction of new technologies and industrial restructuring are occurring in unionized relationships, albeit without significant input from labour leaders. Using data from the WWTS, Betcherman [1987] found no significant difference between union and non-union firms in: 1) the rate of technological change; and 2) the degree to which workers were involved in the process of introducing technological change. Moreover, this study found that technological changes in union firms were less likely to result in skill enhancements or the creation of new jobs than were changes in non-union firms. These results are rather sobering since they imply that Canadian unions have neither attempted to nor been successful in influencing the process or outcomes of technological change in ways that are beneficial to their members. Even the fact that these data suggest unions do not deter or slow down the introduction of new technology is of little consolation since one would expect the existence of union wage premiums to lead to a faster rate of technological change in union than in non-union firms.

A case study of the process of restructuring in a large Canadian steel plant [Adams, 1988*a*] concluded that both the company and the union acted in traditional ways. They bargained hard in contract negotiations over changes in wages, work rules, and employment adjustment provisions, and then used existing contract administration procedures to implement the changes agreed to. A similar pattern described in a case study of the process of technological change in a large manufacturing firm reinforces the survey result [Chaykowski and Slotsve, 1988]. In this organization, management has followed an aggressive strategy of investing in new technologies and in the process has successfully negotiated with the local union to reduce the numbers of job classifications and to reorganize work to better fit the new equipment.

Thus in these cases one again observed the union following a traditional strategy of negotiating to cushion the impacts of technological change on the workers affected and leaving to managerial initiative the decisions about how to reconfigure jobs and related organizational policies to support the new technologies. In turn, management took an equally traditional approach to the process of technological change. No effort was made to take a socio-technical approach to the design of the technology or the job structure. Instead, the technical and industrial relations and human-resource management dimensions of the change process were separated and addressed in a standard, sequential fashion. If the experience of U.S. firms generalizes to these cases, we can conclude that the full potential benefits of the new technology to these two firms, their workers, and their union were not realized. If the survey and case study results summarized above reflect accurately current practices in Canadian labour-management relations, then this conclusion may have even wider generalizability.

Human-Resource Management

One of the major conclusions of our research on U.S. industrial relations has been that innovations in human-resource management practices in the non-union sector during the 1970s served as an important stimulus to union-management innovation in the 1980s [Kochan, et al., 1986]. The lack of comparable data on Canadian management practices makes it difficult to draw any definitive conclusions on the nature of human-resource practices in non-union firms in Canada. Clearly, as in the United States, there are a number of highly visible non-union firms (e.g., Magna Corporation, Michelin, Dofasco Steel, and so on) that have been quite successful in avoiding unionization and that have a reputation for innovative practices. Yet, the impression is that Canadian managers in both the union and non-union sectors have been less aggressive than their U.S. counterparts in initiating human-resource management innovations [Adams, 1988*a*]. The results of the WWTS and another survey of management practices in British Columbia [Thompson and Verma, 1987] are consistent with this impression. Yet more data are needed before this "impression" should be accepted as fact. However, one interpretation of the evidence that is available is that Canadian managers are, as their U.S. counterparts in the late 1970s, under pressure from their senior management colleagues to accelerate the pace of change and innovation in human-resource management. If this is true, a significant escalation in competitive pressures on the Canadian economy may unleash these pressures and produce more aggressive actions by Canadian employers. On the other hand, there may be more incremental change occurring in human-resource management in Canada that is less visible to outside observers. The fact that no concrete conclusion can be reached on the basis of the available evidence of the nature and impacts of Canadian human-resource practices suggests that this is another important area in need of further research and policy analysis.

Implications for the Future of Canadian Industrial Relations

The above comparison of the responses of the U.S. and Canadian industrial relations systems suggests the following tentative conclusions:

1 Most of the changes in practice observed in the United States are also occurring in Canada. As in the United States, these changes have not diffused widely across the economy to the point that a "new" system is in place. Indeed, the evidence suggests that the process of change or transformation in industrial relations and human-resource practices has been slower, more incremental, and less widely diffused in Canada than in the United States. Specifically:

- The rate of increase in collective bargaining settlements has moderated although the change is not as great as in the United States.

- Contingent compensation practices are not popular with union leaders while employers show little interest in initiating the organizational changes required for contingent incentive systems to be adopted and supported by workers and union leaders.

- Growth in union membership in the private sector has levelled off; however, it has not fallen precipitously as in the United States.

- Unions have had very limited success in organizing employees in firms that follow state-of-the-art human-resource management practices, although there appear to be fewer firms that use these practices to avoid unions in Canada than in the United States.

- A number of local unions are participating in experiments with labour-management cooperation, worker participation, and flexible forms of work organization, although these innovations do not appear to be as widespread or to have as many local-level advocates at this point in time as in the United States.

- National union leaders remain rather uniformly skeptical of management's motives for introducing labour-management innovations and therefore are not willing to endorse or champion these innovations.

- Unions oppose the Canada-U.S. Free-Trade Agreement because they fear the loss of jobs to U.S. non-union firms and/or the growth of a U.S. hard-line style of management in Canada.

- Canadian unions have taken conventional approaches to corporate restructuring and technological change efforts by neither blocking nor seeking to participate actively in the management decision-making processes that guide such efforts.

- Canadian immigrants and other minorities are experiencing difficulty in gaining access to the training and jobs required to improve their incomes and occupational status.

2 The processes by which these changes are introduced differ from the experiences in the United States in two interrelated ways. First, the non-union sector seems to be less of a source of human-resource management innovation that is pressuring unionized firms to match their lead. Second, where changes are occurring in union firms, the changes are coming through the normal bargaining and contract administration process. There appear to be fewer examples of formal programs in labour-management cooperation and participation at the workplace and even fewer examples of union leaders playing a significant role at the strategic level of managerial decision making.

In summary, the evidence suggests that the same pressures that are affecting industrial relations in the United States and other advanced industrial economies are at work in Canada and are producing experiments similar in kind if not in magnitude or scope as in the United States. This does not mean, however, that Canada is destined to experience the same types of patterns of adjustment and industrial relations turmoil as the United States. Instead, the future path of diffusion of innovations and adaptation will, as in the United States and other countries, depend on the choices and strategies of management, labour, and government policymakers. Thus, in this section, an attempt will be made to focus on the choices available to each of these parties. In doing so, a number of needs and opportunities for further research and policy debate will be highlighted.

Choices for Management

Canadian employers do not appear to be as aggressive in stimulating changes and adaptations in human-resource practices as their U.S. counterparts. This has both advantages and disadvantages for the adaptation process. One advantage is that while Canadian union leaders voice a degree of distrust of management's motives, there is still a less hostile labour-management social climate in Canada than in the United States. Therefore, Canadian managers are not as limited by the ambivalent attitudes of many U.S. managers regarding the decision of whether to attempt to work with or around unions in the adaptation process.

Canadian managers will have to work more intensively with union leaders if the adaptations in industrial relations noted at the outset of this article are to be achieved. The alternative would be for management to invest in a 20-year process of expanding the non-union sector to the point where unions were sufficiently weakened that they would either be ignored or forced to accept a secondary role in management-controlled change processes. Setting aside issues regarding the desirability of such a strategy, its feasibility is doubtful given the size and political strength of the Canadian labour movement. Therefore, Canadian managers will need to accelerate their efforts to promote change and adaptation with union leaders either through the conventional channels of negotiations and contract administration or by more active efforts to develop new forums for consultation at the workplace, enterprise, industry, and national levels. But there is no guarantee that managers will actually choose to put more emphasis on achieving change by working with union leaders. Some firms may increase their efforts to avoid unions. Thus achieving a better understanding of the factors that influence management's choice of strategies and their consequences for individual firms, employees, and the macro-economy should be high on the priority list of researchers and policymakers.

If the popular view that cross-functional communication, participation, and integration in new product and process developments is accurate, Canadian management, as their American counterparts, will need to make significant changes in organizational structures and processes. These changes will involve modifications in traditional power distributions and organizational boundaries. If case study experiences from U.S. organizations are indicative, this will be a highly intense political process and one that will only succeed if the organizational culture and management reward structure reinforces the change process.

Ultimately, the direction of human-resource policy in Canada will depend in large part on the nature of the business strategies that Canadian firms adopt. The more firms attempt to adapt to increased world competition and changing market conditions with strategies that emphasize product differentiation, product quality, and innovation, the more demand there will be for the organizational and human-resource policy changes that support these strategies.

Choices for Union Leaders

Canadian union leaders have responded to pressures from their environment and managerial initiatives for change in ways very similar to the way U.S. union leaders reacted in the 1970s. This does not imply that Canadian leaders are simply behind their American counterparts. Instead it reflects the stronger and more secure position of the Canadian labour movement, a position similar to the perception most U.S. labour leaders had of their position in the 1970s. Thus given their greater strength and the less hostile managerial and political environment in which they operate, Canadian union leaders have a wider range of choices open to them than do their American counterparts at the moment. This suggests that union leaders could adopt an active strategy and lead the debate over how to adapt to change in ways that are consistent with the interests of their members. Such an effort would need to be guided by a vision of not only the role labour wishes to play at the national and provincial levels of policymaking but also the long-run role unions want to play at the workplace and in strategic managerial decision making. The alternative union strategy is to continue to hold to conventional views as to the adequacy of collective bargaining for meeting these challenges. Adherence to this policy is likely to lead to an increase in managerial militance and, in the end, to more of the frustrations, disappointments, and membership declines experienced by their U.S. counterparts.

One of the most difficult challenges and strategic choices facing not only Canadian union leaders but union leaders in most countries is how to respond to the increasingly diverse labour force. Collective bargaining has not proven to be sufficiently attractive to white-collar, middle managers, temporary and part-time workers, and employees in small enterprises to get them to organize in large numbers. Yet all of these groups are growing at a faster rate than the more highly organized blue-collar and professional groups. Does this imply that new institutional forms of worker representation and participation need to be pursued to supplement or complement collective bargaining? Do works councils, board membership or other forms of non-exclusive representation have merit and appeal in Canada? These questions have been raised by researchers in Canada in recent years [Adams, 1986] but have not yet stimulated significant discussion or experimentation. Thus there is no way to answer these questions at the moment in the absence of more open debate, experimentation, and analysis. Yet, as their counterparts in other advanced industrial economies, Canadian labour leaders are likely to find themselves deep in such debates in the years ahead. Thus stimulating and then evaluating the results of these debates and the experimentation they might generate should be a high priority for policymakers and researchers.

Implications for Government Policy

Let us assume the underlying premise of this paper is accurate that contemporary industrial relations practices need to be adapted in significant ways if they are to contribute to a nation's competitiveness and the welfare of its citizens. Further assume the basic conclusion from this review of the evidence is accurate that changes are under way but not widespread. Then the fundamental challenge facing public policymakers in the years ahead lies in diffusing and institutionalizing the necessary changes. Yet governments have had very mixed records as promoters or catalysts of private sector innovations. In the United States, for example, efforts to develop and use a National Commission on Productivity and Quality of Work basically failed for lack of enthusiastic support from either labour or management. The Ontario Quality of Working Life Center seems to have experienced a similar weak level of union and management support. Perhaps the tripartite labour market research boards that are now under way will be more successful.

If experience in other countries is any guide, however, *isolated* initiatives by government agencies to diffuse and institutionalize industrial relations innovations are unlikely to have a major or lasting effect. Instead, just as industrial relations reforms or innovations at the firm level require supporting human-resource policies and business strategies, national policymakers will need to view industrial relations innovations as an integral part of Canada's long-term economic strategy.

Summary

For the past two decades the Canadian and U.S. systems of industrial relations have diverged in important ways. Differences in union membership trends, management, human-resource, and industrial relations strategies, and the political strategies of labour are the visible markers of the divergent patterns of industrial relations between the two countries. Yet the pressures for changing product markets, technologies, and labour force demographics affecting the two systems are similar and are likely to intensify in Canada in the years ahead. This suggests that the pace of change may also accelerate in the years ahead.

The means by which change occurs in Canada need not and are unlikely to be the same as in the United States. But if the conclusions of this paper are correct, to avoid the adversarial aspects of the U.S. pattern of adaptation, labour, management, and government policymakers in Canada will need to make significant changes in their traditional beliefs and practices. Labour will need to become more of a champion of innovation and adjustment at the workplace and play a broader role in the management and governance of the enterprise. Management, in turn, will need to accept a broader role of workers and their representatives in the enterprise in return for the changes in the human-resource policies and practices it needs to compete in contemporary markets. Government policymakers will need to see these industrial relations innovations as critical to the performance of the national economy.

For these changes to in fact occur will require nothing short of a fundamental rethinking of the nature of the corporation and the role that employees and their representatives should play in its governance. It implies acceptance of a stakeholder model of organizational change and governance. Short of such a transformation in views, structures, and practices, it is unlikely that the rhetorical call for firms in Canada (or the United States) to use human resources and technology for competitive advance will be turned into a reality.

Commentary by Rosalie Silberman Abella

As a lawyer, I long ago learned that the Supreme Court of Canada is our highest authority in matters of law and one does not lightly challenge its judgment. In a way, I'm in a similar position as a labour lawyer commenting on a paper by Tom Kochan. There are few higher authorities than Kochan in the field of industrial relations, either as Kochan simpliciter or as Kochan, et al. But without challenging any of his analyses, with which I fully agree, I want to highlight some impediments I see to his vision of an innovative, flexible, redefined relationship, a prerogative I take not as a higher authority, but as someone with an exaggerated preoccupation for the *Canadian* perspective.

From this perspective, I see very nervous times ahead for labour-management relations and particularly for labour. I don't disagree with any of Professor Kochan's issues, merely with his gentle emphasis.

Responses to economic competition will increasingly take forms such as Bill 19 in British Columbia and the Michelin Bill in Nova Scotia. Management will want understandably to be unfettered by those aspects of collective bargaining and labour law it feels impairs its quest for flexibility, productivity, and profit in a competitive market. Labour will want understandably neither to loose its grip nor its capacity to negotiate secure wages, maximized working conditions, and jobs in a competitive market.

The nervousness we can expect in the years ahead will be driven by fear. Fear of change, fear from change, and fear for the absence of change. The struggle will not only be for hegemony over the levers of change, it will be a titanic conflict between segments in management and labour for what they see to be their very survival.

And into this tension we can expect to see increasing pressure brought to bear on the political process to come to the aid of each side, as and when it perceives its interests at risk. As each side feels itself in danger of being sacrificed on the other's ideological altar, it will go back to its corner, deliberate, collect its energies, and come out swinging – either by workplace, industry, community, or election. There is nothing new in this phenomenon. It is the essence of liberal democratic policy determination. What is new, however, is the pressure and intensity the process radiates because the exercise will be performed in the shadow of the free-trade deal. The merits of the deal need not be debated here. Time may well judge its philosophies and provisions to have been the correct policy responses to economic globalization.

What its reality has not changed are the props in the industrial relations drama we have all watched in fascination since the 1930s and 1940s; it has, however, radically transformed the stage, leaving the players and directors in doubt about what the last act of the script will be.

The introduction of the trade deal, in short, gives a centralizing thrust and dimension to Kochan's thesis on the key industrial relations challenges in the year 2000. He identifies five major issues: 1) labour-cost moderation; 2) improved productivity; 3) flexibility in the use of human resources; 4) a highly motivated and multi-skilled labour force; and 5) sustained innovation in labour-management relations at the level of the enterprise.

In Canada, we can expect that the formulation of these issues, along with global competition generally and the trade deal in particular will put pressure on labour's continued ability to resist wage moderation in the face of management's desire to curb labour costs; on labour's recent demands for advance notice, consultation, and compensation for technological change in the face of management's desire to improve productivity; on labour's capacity to capture and sustain representational rights in the face of management's desire to streamline its human-resource complexities; on labour's ability to increase access to education and training for underskilled or deskilled workers in the face of management's desire to replace technologically unskilled workers quickly with technologically competent ones; and finally, on labour's ability to retain its integrity with its membership as a loyal advocate rather than a co-opted partner in the face of management's desire to supplant adversarial solutions with cooperative ones.

Canadian labour has always resisted concession bargaining, profit sharing, quality of working life circles, and generally most of the collaborative approaches to the reduction of tensions and the enhancement of productivity American unions have embraced to their institutional disadvantage. Yet these are the strategies Canadian management is likely to offer increasingly, as bilateral trade makes the search for a competitive advantage by "levelling the playing field" or "harmonization" feel urgent. Expanded markets bring expanded competition for consumer approbation, and having liberalized trade in this country, we can expect management to monitor its continued responsiveness to the imperatives of the newer markets. Each sector, and every business in that sector, will be vigilant over what it senses to be barriers to success.

It will examine its own environment – the labour and employment laws it is governed by, the collective agreement provisions it is bound by, and the technical or human-resource methodologies it is restricted by. If it concludes that any aspect of this trilogy is interfering with its capacity for success or survival, it has three decliningly attractive alternatives: to seek to change them, to seek to relocate if it cannot, or to close down. And in its attempts to seek to change or eliminate the obstructive law, provision, or strategy, it will predictably rely, as a bargaining chip, on the possibility that the other two less attractive alternatives are nonetheless possible. This in turn confronts government in the legislative forum, and unions at the bargaining table, with fearful options. Failure to cooperate as handmaidens of economic success carries the risk of circumvention or redundancy.

Cooperation, on the other hand, carries for government the risk of a radically redefined social contract, and for unions the risk of collusive obsolescence.

Consider the position of labour. At the moment, it observes the plant closings of recent days as confirmatory evidence of the veracity of the jeremiads it prophesied during the election. Moreover, its fear for the reduction of real wages is amplified not only by the prospect of disadvantageous definitions of countervailable subsidies to be negotiated over the next seven years pursuant to the trade deal, but also by the outcome of the Uruguay Round of the GATT talks on multilateral trade liberalization. What labour foresees, rightly or wrongly, is that the competition engendered by these forces, and in particular by free trade, will lead to further plant closings, layoffs, wage reduction, and imposed technological change.

In addition, it anticipates that competitive pressures could lead to the negotiation of trade agreements that will displace – as designated subsidies – regional grants and benefit packages; and erode or impede – as designated over-regulation – labour legislation or collective agreement provisions designed to protect bargaining strength. Their perception is that the pursuit of labour-cost reduction will result in labour's own reduction. And, threatened, they will organize and bargain vigorously and tenaciously. They cannot be expected to do otherwise, any more than can management be expected to accept with sanguinity what it perceives to be impediments to competitive capacity. The result will be, for a time, more stand-offs, strikes, inter-union rivalry and jurisdictional disputes, and demands on both sides for protective government intervention.

With few and rare exceptions, I think we will quickly see the current era of intense introspection give way to intense tension long before anyone has the energy to concentrate on what new strategies are best able to inspire labour peace.

Each of management, labour, and government will likely be so preoccupied with the interstitial assessment and implementation they perceive to carry the least short-term risks, that it may well be long past the year 2000 before we have experienced and recovered enough to know what the least detrimental long-range alternative is from a public policy perspective. This may prove to be a necessarily cathartic decade – after all, it may be overly idealistic to expect a global economic revolution not to generate dislocation, readjustment, and reassessment. But we are not yet historians analysing the message of a bygone traditional era. We are at this moment merely poised as tentative prognosticators.

We cannot expect plaudits from the transition's current sectoral victims for the confident prediction that the average long-term projections for employment across Canada are positive, any more than could a weatherman, from a frozen visitor to Ottawa in February, for the confident prediction that the average annual temperature in the capital is 50 degrees. When someone is freezing in February, summer feels a distant relief. Discomfort, let alone despair, seeks instant gratification, and it is no more than human to flail when under siege, and no less when besieged by the tentacles of competitive ambitions such as unemployment, or bankruptcy, constituency loss, or threats to industrial democratic principles. Capital may be mobile, but people are less so.

When you add into this cuisinart the industrial relations issues currently in the policy such as contracting-out, privatization, deregulation, mandatory drug and alcohol testing, technological change, first contract legislation, regional disparities, employment and pay equity, human rights, the dramatic increase in women's and mother's labour force participation, demands for fairer access by minorities and the disabled, child care, social equality impetuses, skills development, the changing nature of work, replacement workers, sexual harassment, immigration, mandatory retirement, down-sizing in the public sector, and other pressures for deficit reduction, we find the recipe has too many ingredients to fit into the blender, and too many cooks arguing over what the recipe is or even whether you need one.

Moreover, one almost hesitates to mention, let alone contemplate, the oxymoronic possibilities that the decentralizing impact of the Meech Lake Accord will have on the industrial relations reverberations of the centralized decision to liberalize trade. Or the potential for policy mischief in the interpretive role the courts play in applying a philosophy of individual rights found in the Charter to the collective ones classically subsumed by labour relations. Or in the delay spawned in the labour relations dispute resolution mechanisms by the reviewing courts imposing technical, judicialized procedures or inexpert, substituted judicial opinions on structurally more specialized, expert, expeditious, and less formalized labour boards.

We will hear from economists, sociologists, political scientists, and industrial relations, immigration and human-resource specialists, as well as demographers, historians, and lawyers, each trumpeting a particular anxiety, mechanism or prognosis, but none with comprehensive evaluative capacity. We each want to be midwives to a successful economic rebirth, but it cannot be done unless done collectively and with collective appreciation that the birth must be engineered to minimize, not foster, sibling rivalry. I don't mean to appear admonishing either to the industrial relations players or the disciplines which study or advise them. I simply point out that we enter this transition period with the players reading from a script in which they have each had starring roles, roles they either earned or assumed, and none can be expected willingly to trade their lead for a walk-on part. There will be victims, but no volunteers.

What then do I see for the years leading up to 2000? Polarization, politicization, and paroxysms of trepidation in industrial relations. A frenzied demand for labour market adjustment programs and a heated debate over who should pay for them. A feast for consultants and famine for tradition. More sophisticated human-resource management and more aggressive union organizing. Passionate bargaining on both sides of the table and more work for labour boards. Organized labour's reexamination of its hitherto limited formal participatory role in the development of public policy and management's reexamination of organized labour's role period.

What are the challenges? The great philosopher Yogi Berra said, "Predictions are hard to make . . . especially about the future." We do know, however, that we are in for a turbulent ride.

The challenge in reacting to the turbulence will be to avoid fastening our seat belts so tightly that we cut off circulation to any of our valuable limbs. There is a nervous public in the audience watching this drama, and I can understand its anxiety. We will be witnessing a formidable competition between economic, political, legal, and social values. But I am convinced that if we put the exercise under a highly sensitive, multidisciplinary microscope, we can emerge from our experimental chrysalis into a healthy industrial relations environment with minimal human or institutional victims. It will take nothing less than a massively cooperative policy response and a renewed commitment to industrial democracy and to its existing participants. The ultimate challenge is to earn history's approval. The immediate one is to apply our energies to the task.

9 Future Trends and Issues in Education

George Psacharopoulos

Education is big business in more than one sense of the term. One out of five persons in the world today, regardless of age, is enrolled in a formal educational institution. In advanced developing countries eight out of every 10 persons aged 5 to 24 are in school. Teaching is the most populous occupational category in practically every country in the world. Governments typically spend 15 per cent of the state budget on education, and in some cases up to one third (UNESCO Statistics).

Given such numerical and monetary dominance, it is no wonder education has always been the subject of intense public debate.

One particular issue is how education links to the labour market and the economy in general. Every country has, at one time or another, attempted to anticipate economic developments and the way such developments would affect the market for educated labour. Equally important has been the issue of what kind of education to provide today in order to influence the way the economy will develop tomorrow.

The purpose of this paper is to take a fresh look at the relationship between education and the economy, and attempt to anticipate public policy issues in this nexus around the turn of the century. It also attempts to identify related areas of research. The paper covers both industrial and developing countries, with emphasis on the former.

Paper Outline

The next section presents a brief analytical framework in order to organize the discussion of the complex issues addressed in the paper. The following section documents past trends and issues on the relationship between education and the economy on a global scale. The section on emerging issues, which is the core of the paper, discusses the issues likely to dominate public policy discussions on education in the next century. The final section provides an agenda for research in order to address the emerging issues.

Summary

Two issues are likely to dominate public policy education discussions well into the coming century:

- The share of public versus private responsibility in providing for or satisfying an ever-growing demand for education, especially at the postsecondary level.

- The nature, location, and duration of what is taught.

On the first issue, I predict a gradual shift away from public and towards private financing of education. On the second issue, I predict a gradual shift towards generalized communication skills in formal education, firm-based specialized training, and shorter-length postsecondary education.

The Links between Education and the Economy

Is educational development the result of economic growth, or does education contribute to economic growth? The direction of causation is critical in the sense that if educational expansion is simply the result of economic growth, it could not be used as an instrument for economic development. If, on the other hand, the direction of causation runs the other way, then one could use education as a policy instrument to stimulate economic modernization and growth.

The literature is extremely rich with arguments on both sides of the causal link. The "education -> economic growth" position is represented by the so-called manpower forecasting and human capital schools, whereas the "economic growth -> education" position is largely represented by the education-as-consumption or screening-for-ability schools. Although the real world is never an either/or situation, it is appropriate to summarize these positions as background to anticipated issues in education to be discussed in the following section.

I am grateful to Emmanuel Skoufias who assisted me in producing this paper. The views expressed here are those of the author and should not be attributed to the World Bank.

Education for Economic Growth

This school could be divided into two distinct components: first, the manpower forecasting approach, which also represents the way educational planning started in the post-World War II era; and second, the human capital approach that was developed in the late 1950s and early 1960s.

Manpower Forecasting

According to this approach, there is a close relationship between the occupational and educational structure of the labour force on the one hand, and the structure and growth of output in a given country. Hence, if the country's economic development plan calls for, say, an expansion of petrochemical industries, then a given number of petrochemical engineers must be produced in the future; otherwise the expansion of petrochemical output would be halted, or it might become impossible. This intuitively logical argument is based on the notion of a zero elasticity of substitution between different types of skills in the production process [see Hinchliffe, 1987].

Human Capital

Although the human capital school shares the same notion of the direction of causation, from education to output, as the manpower approach, the stipulated mechanism under the second model is different. According to the human capital school, educational expenditure is a form of investment. Hence, as any other type of investment, it yields a stream of benefits in the future. To the extent that the present value of benefits is greater than the present value of costs, education contributes to economic growth. To put it differently, the human capital school is less concerned with the exact matching of people-to-occupations-to-schools-to-the-shop floor, as with the creation of a stock of knowledge that can be used anywhere in the economy, for strict economic production or even for "household production" (e.g., a more educated housewife producing healthier meals for the family – a very important issue in developing countries) [see Schultz, 1980].

Education Unrelated to Economic Growth

Here again there are two distinct sub-schools to represent this position, listed below in the chronological order they appeared in the literature.

Education as Consumption

This is a very straightforward intuitive notion, namely that as incomes grow, in general, so will the demand for education. Such demand will grow not necessarily for investment purposes, as advocated by the human capital school, but for sheer consumption purposes – piano lessons being the typical example. This sub-school is sometimes labelled the "social demand approach" to educational planning, which really means to let the private demand for educational services drive the educational system, rather than the central computer of the manpower forecaster. Of course, providing education solely according to social demand would not mean that the production goals of the economy will be sacrificed. The reason is that there must exist an overlap (shadowed area in Chart 9-1) between the two types of demand for education, from the social viewpoint and from the point of providing the necessary manpower for economic growth [L. Robbins, 1963 and Harnqvist, 1987].

Screening

This is the most sophisticated version of the anti-education-for-economic-growth thesis. According to the extreme version of it, all education does is to screen the more able from the less able. Since such screening could take place by less expensive means than putting someone through school for several years, a great part, if not all, of educational expenditure is a waste rather than social investment. To put it differently, individuals will strive to obtain educational credentials in order to signal to potential employers their intrinsic ability, rather than becoming more productive as a result of the cognitive skill they have acquired [see Taubman and Wales, 1973].

Historical Trends and Patterns

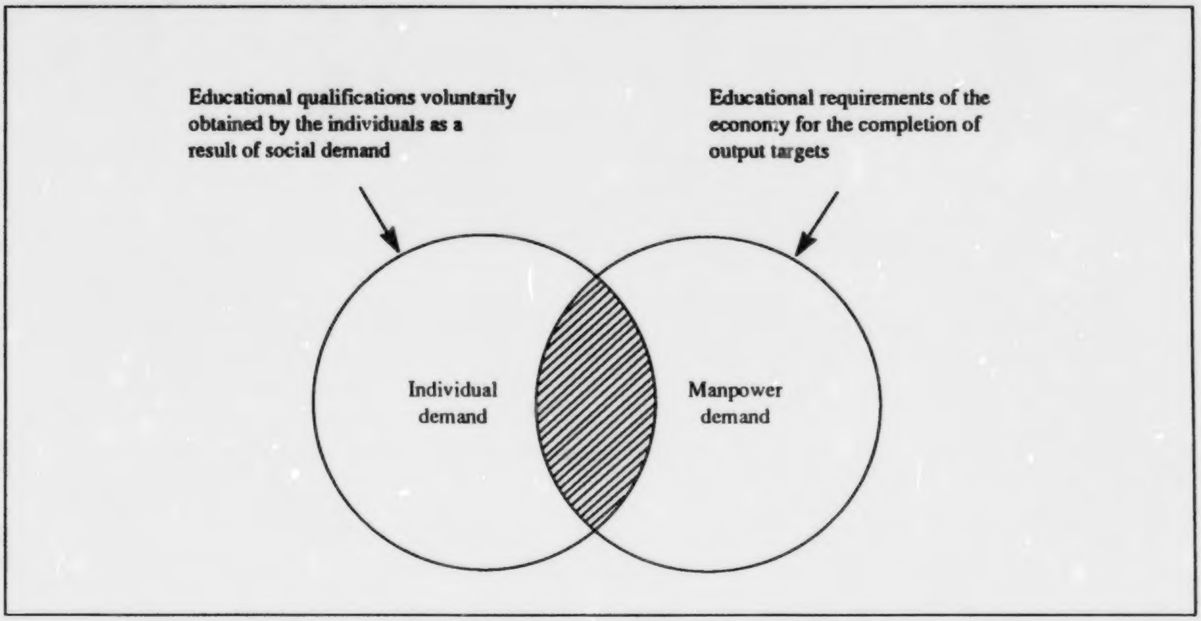
What is the existing evidence in support of or against the highly contrasting conceptual positions outlined above? Let us highlight this evidence in the corresponding order the various schools of thought were presented in the previous section.

The Impossibility of Manpower Forecasting

In spite of its logical appeal, manpower forecasting has not lived up to its intuitive power. Several post-mortems of manpower forecasts have been performed around the world,

Chart 9-1

The Overlap between the Social and Economic Demands for Education


Educational qualifications voluntarily obtained by the individuals as a result of social demand
Educational requirements of the economy for the completion of output targets
Individual demand
Manpower demand

i.e., comparing predictions of the structure of the labour force by skill or occupation to what, in fact, happened at the horizon of the plan. The result has been virtually uniform: it is impossible to predict the occupational, let alone the educational, structure of the labour force even a few years ahead, even in highly advanced countries (see Ahamad and Blaug [1973], for the classic post-mortem exercise in this respect).

In the United Kingdom, for example, attempts have been made to predict the number of persons in different occupations three years ahead. The record of such predictions over a 10-year period is given in Table 9-1. For the economy as a whole, the forecast was one to two thirds higher than the outcome [Dougherty, 1985, p. 82]. The record of such predictions in developing countries is even more abysmal [see Jolly and Colclough, 1972]. Even in a centrally planned economy as Tanzania, the tuning of manpower and education to the needs of the economy has not been very successful [see Psacharopoulos and Loxley, 1985].

Such experience with manpower forecasting provides an important lesson for today's "educational planners." Economic dynamics are unpredictable, hence it is simplistic to assume that one can work out the implications of technological change on the demand for given types of manpower skills and education. This point will be elaborated at greater length below.

Table 9-1

Post-Mortem of Forecasting the Number of Scientists and Technologists in the United Kingdom, 1956-68

	Change over a three-year period	
	Forecast	Actual
	(Per cent)	
Forecasting periods:		
1956-59	27	20
1959-62	23	17
1962-65	25	15
1965-68	24	17

SOURCE Based on C. Dougherty, "Manpower forecasting and manpower-development planning in the United Kingdom" (1985), Table 3.

Table 9-2

Returns to Investment in Education, by Country Group and by Level of Schooling

	Social return			Private return		
	Primary	Secondary	Higher	Primary	Secondary	Higher
			(Per cent)			
Africa	26	17	13	45	26	32
Asia	27	15	13	31	15	18
Latin America	26	18	16	32	23	23
Intermediate countries	13	10	8	17	13	13
Industrial countries	..*	11	9	..*	12	12

*Not available because of lack of a control group of illiterates.

SOURCE G. Psacharopoulos, "Returns to education: A further international update and implications," *Journal of Human Resources* 20 (1985), p. 586.

Education Is a Good Investment

Turning to the human capital school, there has been a stream of literature over the last 30 years showing that what is spent on education is recovered, with a profit, both by the individual investor and/or by society at large [for the latest international compilation of such evidence in about 60 countries, see Psacharopoulos, 1985]. Table 9-2 gives averages of the private and social returns to investment in education in different world regions, by level of schooling.

There are three patterns worth noting in these figures. First, investment in primary education is more profitable relative to investment in any other level. Second, the returns to investment in education in poor countries are much higher than those in advanced industrial countries. And third, the net private returns to investment in education at any level exceed the net social returns because of the public subsidization of education – a point to be elaborated in the following section.

If education is a good investment at the level of the individual, then this must relate to the rate of economic growth of a given country. A quarter century of literature on this subject, known as growth accounting, has resulted in the figures shown in Table 9-3. Evidence from about 30 countries indicates that a substantial proportion of the rate of growth of the economy can be attributed to increases in the educational level of the labour force. It should be noted that the contribution of education to economic growth is greater, on average, the lower the level of a country's per-capita income – a finding consistent with the law of diminishing returns observed for traditional types of investment.

Of course, such a rosy interpretation of the role of education in development has not remained without challenge. Evidence on the two anti-education theses is presented below.

Education as the Laggard rather than Leader of Development

The high correlation between educational development and the level of a country's per-capita income could well be interpreted the other way around: it is economic wealth that makes the availability and expansion of education possible. This chicken-egg problem has baffled analysts for years and, until very recently, the position someone took on this issue was based on a priori theoretical expectations rather than evidence. But two pieces of analysis, from very different fields, shed some doubts on the validity of the education-as-a-result-rather-than-cause thesis.

Table 9-3

Contribution of Education to Economic Growth, by Region

	Economic growth rate explained by education
	(Per cent)
Africa	17
Asia	11
Latin America	5
Advanced countries	9

SOURCE G. Psacharopoulos, "Critical issues in education: A world agenda," *International Journal of Education Development* 8, no. 1 (1988*a*), Table 1.

Econometricians have addressed the issue of one-way causality inherent in the figures presented in Table 9-3, namely that the level of income might be influencing the level of education rather than the other way around. Pooling data from 80 countries and using simultaneous equation techniques, Wheeler [1980] found that education has an independent effect on income. For example, on average, an increase of the literacy rate from 20 to 30 per cent is the cause of an 8- to 16-per-cent increase in the gross domestic product. In another study, Marris [1982] used data from 66 developing countries and a chain model of output determination to show that the benefits of education in terms of economic growth are very high, and in particular that investment in physical capital generally plays a weak role when not supported by education.

Turning to another discipline, economic historians have addressed the educational development economic growth chicken-egg problem by observing long-term cycles of rises in literacy and changes in output. Using this type of analysis, Easterlin's [1981] conclusion is that the direction of causation is from literacy to increments in production.

Education as a Screen for Ability

Although plausible, again, this hypothesis is extremely hard to test. The reason is that measures of inherent ability of individuals are very hard to come by. In fact, some early analysis using ability proxies in an earnings function have shown that the importance of schooling is not diminished when controlling for ability [Griliches, 1979]. And a series of more recent tests have failed to support the screening hypothesis [for a review, see Cohn, et al., 1987].

Since the so-called screening hypothesis is essentially a challenge to the social productivity of education, an indirect way of testing it is to observe the rate of return to investment in education for those who work in the private sector of the economy. The premise here is that a competitive, private sector employer could not afford to consistently pay higher or lower wages than the level suggested by the productivity of the worker. If he did, he would lose his most productive workers to other employers; and if he did not pay competitive wages, he would be unable to get the type of skills he requires. Several analyses have shown that, indeed, the returns to education in the competitive sector of the economy are higher than those estimated on the basis of earnings differentials in the public sector (see Table 9-4). This is very strong, although indirect, evidence that education not only acts as a screen for ability, it also has a productivity enhancing effect. Also, the evidence that education has an independent productivity effect where the output is measured in physical units is overwhelming [e.g., in agriculture, see Jamison and Lau, 1982].

Table 9-4

Returns to Education, by Sector of Economic Activity

	Rate of return
	(Per cent)
Economic sector:	
Private	13
Public	10

SOURCE G. Psacharopoulos, "Education and development: A review," *The World Bank Research Observer* 3, no. 1 (1988*b*), Table 6.

Emerging Issues

Public debate about education has been with us since education was invented [for several attempts to predict future developments in education, see European Cultural Foundation, 1972; Gershuny, 1978; Glover, 1979; Husen, 1979; Tinbergen and Psacharopoulos, 1983; Rassekh and Vaideanu, 1987]. As the range of topics is vast, I collapsed them into three subheadings – demographics, financing, and technology. The first issue might pertain only to developing countries, although financing and technology pertain to all.

Demographics

By way of introduction, let us have a summary look at the educational situation in the world today. Perhaps the most telling statistic in this respect is the literacy rate of the population, i.e., the percentage of people aged 15 and over who know how to read and write, or the opposite, i.e., the illiteracy rate. Table 9-5 shows that over one quarter of the world population today is illiterate. Of course, this average hides the fact that the illiteracy situation is much more serious in developing rather than in advanced industrial countries (38 versus 2 per cent, respectively), and that in some rural areas, 98 per cent of women do not know how to read and write.

If one accepts the fact that a literate population is the *sine qua non* for any developmental effort, then the first world scale issue in education is how to achieve universal literacy. Although increasing literacy is clearly a concern of

Table 9-5

Illiteracy Rates, by Region, 1985

	Both sexes	Females
	(Per cent)	
World	**28**	**35**
Developed countries	2	3
Developing countries	38	49
Africa	**54**	**65**
Benin		
Urban	69	80
Rural	93	98
Asia	**36**	**47**
Afghanistan		
Urban	63	79
Rural	85	98
Latin America	**17**	**19**

NOTE Refers to population aged 15 and over.
SOURCE UNESCO, "The current literacy situation in the world," Office of Statistics (1985).

developing countries, it also concerns advanced industrial countries. The reason is that any effort of international co-operation – and not only world trade – hinges upon elementary communication skills (say, reading a newspaper), a luxury that cannot be only afforded by diplomats and an urban elite.

Developing countries have been struggling for decades to achieve universal literacy. The achievement of this noble goal, however, keeps slipping. For example, in a famous 1960 world conference of the ministers of education in Addis Ababa, the decision was made to achieve universal primary education by 1980. Table 9-6 shows how far we still are today from this goal.

The first column of figures in Table 9-6 shows the number of children who are enrolled in primary schools as a percentage of the primary school age population. A figure higher than 100 per cent means that the primary school system contains many children who are beyond the primary school age. Repetition of a grade is a common phenomenon in developing countries, especially in Latin America, and it is a major indicator of the (low) quality of an educational system, i.e., the child has to remain longer in school in order to achieve a given level of learning.

One major reason why developing countries have not been able to achieve universal literacy (in terms of the stock of the population) or universal primary education coverage (in terms of school attendance of the young) is demographics. Table 9-7 shows that whereas the 6-11-year-old group in advanced countries has stabilized around the 100 million mark, the number of primary school children in Africa will more than double between the mid-1980s and the beginning of the next century. Putting this number of children through school will be a challenge, linked not only to demographics but to the possibility of financing a school expansion of that scale. This issue is amplified below.

Table 9-6

School Enrolment Ratios, by Region, 1985

	School enrolment		
	Primary	Secondary	Higher
		(Per cent)	
Africa	84	33	4
America	106	65	32
North America	103	100	63
Latin America and Caribbean	108	52	15
Asia	100	39	6
Europe (including Soviet Union)	104	86	24
Oceania	97	75	23
Developed countries	102	88	33
Developing countries	98	38	6
World total	99	46	12

SOURCE UNESCO, *Statistical Yearbook* (1987), pp. 2-33.

Table 9-7

Trends in the Number of Children Aged 6-11, by Region, 1970-2015

	1970	1985	2000	2015
		(Millions)		
Developed countries	110	97	100	99
Developing countries	412	548	634	699
Africa	58	91	146	205
Latin America	48	64	79	87
East Asia	135	160	137	136
South Asia	179	240	274	275
World	522	645	735	798

SOURCE K. C. Zachariah, "Fertility, school age population and enrollment ratios," the World Bank, PHN Department (1986), Table 3.

Financing

Education has been traditionally provided free to the individual, i.e., at the state's (read, taxpayer's) expense. Table 9-8 shows that expenditure on education accounts for about 15 per cent of the state budget, in both advanced and developing countries. This share is only second to defence expenditures in most countries.

It now appears that the source of public resources to finance educational expansion has reached its limits, in both advanced and developing countries. There are two main reasons for this. First, the private demand for education has expanded beyond what could be satisfied through public provision of education, say up to the 1960s. In every type of country, students and their families demand more and more education – what has been described "as the one-way street from school to university." When university education is provided free of charge, the only cost the individual bears is the foregone earnings while studying. Therefore, it is natural to expect a world excess demand for higher level studies, i.e., a demand for university places beyond the capacity of most systems to provide it publicly.

The second reason for the inadequacy of the public financing of education is the limits of taxation. Increasing the enrolment ratio from, say, 10 to 20 per cent of the 18-24 age group has budgetary revenue implications that go beyond the ability of most countries to raise the additional funds through new taxes. Tax revenue, at this scale, has many alternative uses other than education, and it is natural to expect legislative resistance to proposals for increased school appropriations.

The free provision of education at all levels is often advocated in the name of equity. Yet several analyses in recent years have well documented the fact that free education does not necessarily mean equity. In fact, in many instances it has the opposite effect, i.e., it is the general taxpayer who finances the education of the offspring of the better-off

Table 9-8

Public Spending on Education as a Share of the Public Budget, by Region, 1965-80

	1965	1970	1975	1980
		(Per cent)		
Africa	16.0	16.4	15.7	16.4
Asia	14.2	13.1	12.2	12.7
Latin America and Caribbean	18.7	18.9	16.5	15.3
Europe, Middle East and North Africa	12.4	12.5	11.5	12.2
Developing countries	16.1	15.8	14.5	14.7
Developed countries	16.0	15.5	14.1	13.7

SOURCE UNESCO, *Statistical Yearbook* (various years).

families whose children have a higher propensity to enrol in the university. This proposition was first advanced for the United States [Hansen and Weisbrod, 1969], but then replicated in many other parts of the world. As shown in Table 9-9, for example, students from higher income groups receive the lion's share of higher education subsidies.

In addition to its inegalitarian effects, free education has an adverse effect on efficiency: when something is enjoyed free of charge, the accountability for monitoring the quality of the product is diluted. There are classic cases of so-called perennial students in some countries who are enrolled at the university simply to enjoy the associated privileges of having a university identification card (e.g., fare discounts), rather than attending their studies and graduating within the normal university cycle [World Bank, 1986].

Another adverse efficiency effect associated with the public financing of education is that at the macro level, a country might be under-investing in education as a whole, because of the limits of the public funds to accommodate additional students, even at the primary level. If, as the figures show, investment in primary education in an African country is of the order of 26 per cent (see Table 9-2), then the country foregoes future income growth by not investing in primary education, and on the assumption that few alternative investments would have such high yield.

The financing paucity is exacerbated in some instances where the provision of private education is officially banned or severely restricted by a set of rules and regulations pertaining to private schools (e.g., ceilings on the fees they can charge). Yet allowing private schools to operate can substantially relieve the limited public budget, the resources of which could be more effectively targeted on needy groups of the population rather than being spread thinly on everyone.

Table 9-9

Share of Higher Education Subsidies Received by Different Income Groups, by Country

	Income group		
	Lower	Middle	Upper
		(Per cent)	
Chile	15	24	61
Colombia	6	35	60
Indonesia	7	10	83
Malaysia	10	38	51

SOURCE The World Bank, *Financing Education in Developing Countries: An Exploration of Policy Options* (1986), Table 10.

Therefore, one major public policy issue in all types of countries over the coming decades will be on how to break the traditional "free education for all" rhetoric, and realistically consider alternative sources of financing.

Technology

The existing literature on the futurology of education has been, in my opinion, dominated by the role of technology. Namely, the emphasis has been on attempts to predict technological developments in order to produce the appropriate skill mix to run the economy [e.g., see Cyert and Mowery, 1987].

Given our experience of the last 20 if not 10 years, I feel this emphasis is misplaced. As noted above, we have been unable to predict even the number of teachers required a few years ahead, let alone the growth of the gross domestic product of a country like the United States, a few quarters in advance. To give another example, no one predicted in the late 1970s the personal computer boom that was to occur in the following five years, and work out the manpower implications of such a quantum jump in technology. The personal computers did arrive and, somehow, the manpower necessary to operate them and write software programs was there: persons doing related occupations (say, mathematicians) were turned within a few months, if not days, into software program writers.

Even if a need for a particular skill is identified, this does not mean that the formal education system should be geared to produce such a skill. Specialized manpower can as well, and perhaps more efficiently, be created by learning on the job or in company-based courses. For example, a recent survey of about 1,000 establishments in Canada regarding computer-based technological change gave the following results: three quarters of the innovating establishments indicated that technological changes had resulted in a need for new and substantially altered vocational skills. The dominant strategy for meeting these new skill requirements was retraining existing workers, mostly by means of short-duration, on-the-job training programs [Betcherman and McMullen, 1986]. In another survey by the U.S. Department of Labor [1986*a*], more than one half of the U.S. labour force indicated that they needed specific training to qualify for their present job, and almost half of them gained their skills on the job (p. 25). (See the appendix for a more detailed review of relevant studies in the United States; the results of which, by extrapolation, must also apply to other industrialized countries and Canada in particular.)

All we know with certainty is that some industries will grow more than others and that services will be the leader in this respect (see Chart 9-2 for the example of the United States). But to try to anticipate minute changes within the service sector 15 years ahead might be pointless.

Skill Requirements and Technological Change

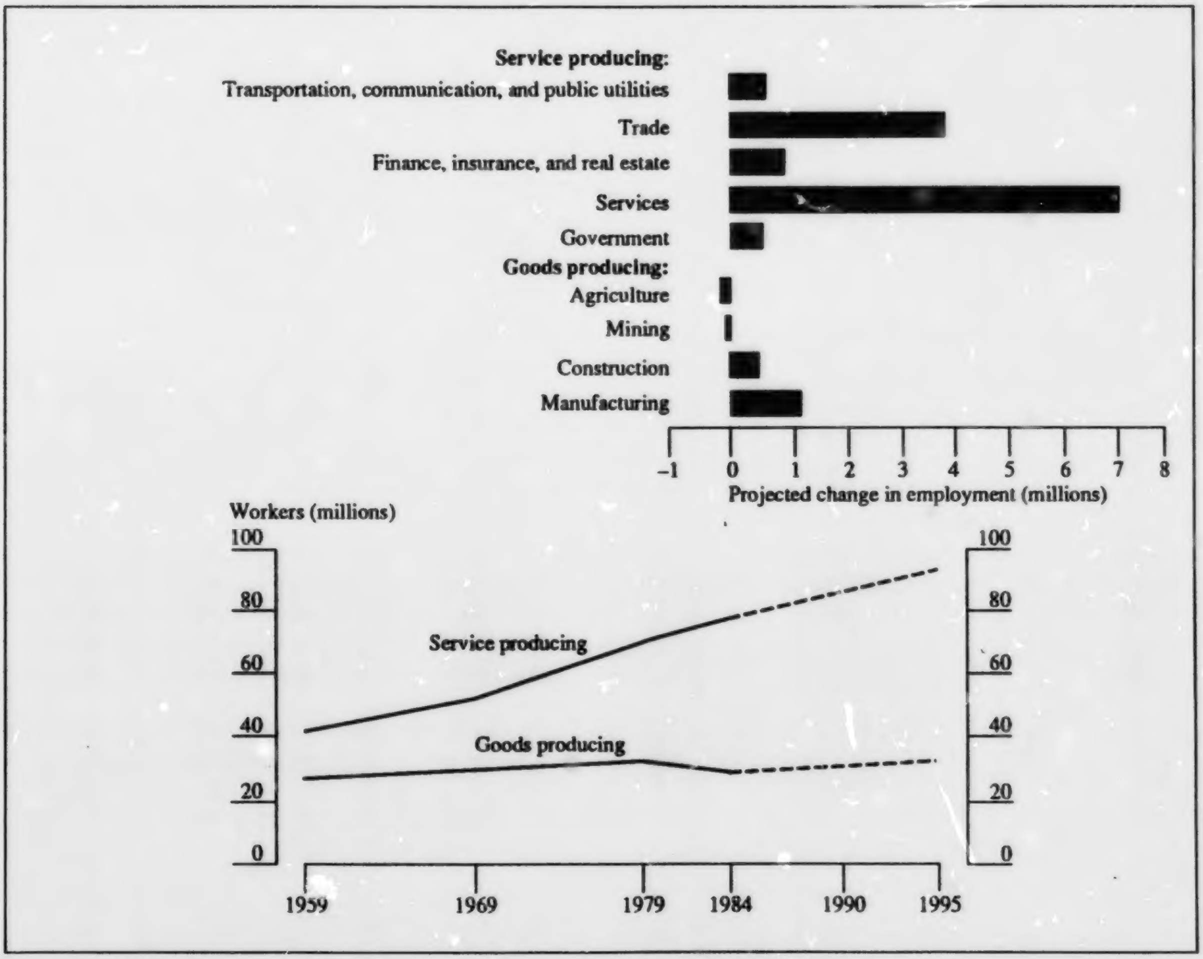
Will technological change raise the skill and/or educational requirements for jobs in the future?

By scanning the literature on this question, one can safely state that there will be no significant upgrading or downgrading of skill and educational requirements due to technological change.

Levin and Rumberger [1985] used educational attainment as a proxy for skill requirements in their analyses of the overall skill implications of the U.S. Bureau of Labor Statistics' employment forecast for 1982 through 1995. Their conclusion was that the educational requirements of projected 1995 jobs were virtually identical to those needed for 1982 jobs. In a related attempt, Spenner's [1985] review of 11 studies found that there is no evidence to support claims of significant upgrading or downgrading in aggregate skill requirements as a result of technological change.

Chart 9-2

Anticipated Employment Change in the United States, by Industry, 1959-95



SOURCE United States Department of Labor, *Occupational Outlook Handbook*, U.S. Bureau of Labor Statistics, 1986a.

According to Cyert and Mowery [1987, Chapter 4], the reasons for this paradoxical conclusion may be due to problems with the definition or measurement of job-related skills, or the change in the classification of occupations over time. Also, technological change may affect skill requirements in different ways depending on the way management implements innovation.

Public Debate Issues

Perhaps the public debate issues of the next century relating to the link between education and the economy would be on how to enhance the general communication skills and learning by doing, rather than to try to work out detailed manpower forecasts by type of skill [Dennison, 1987].

Developing countries will continue to struggle to achieve universal literacy of their population well into the 21st century. Demographics and financing capacity will be the main constraints. Advanced industrial countries will struggle to satisfy the growing demand for postsecondary education, especially at the university level. All types of countries will seek cheaper options to educational delivery, by promoting shorter-length higher education cycles, by expanding the cheaper to run social sciences and humanities, and by introducing open systems and distance learning technologies (radio, television, satellite broadcasts).

The perennial dilemma of vocational versus general education will continue to dominate the scene: vocational education is allegedly more relevant for economic purposes, yet more expensive for the state budget. Rapid and unpredictable changes of technology will weigh for more generalized skills so that specialization can take place quickly and, perhaps, on the job rather than in a formal school [Berryman, 1987*a* and 1987*b*]. A lifetime career in a given occupation will be a thing of the past. Change of occupation will be even more common than at present. This will give a further boost to generalized versus vocational training [Resnick, 1987].

The main burden of educated unemployment will be on the person who decides what level and type of education to acquire. Social security/unemployment systems will take care only of the most needy. This will introduce a high element of accountability equilibrating control/rationality on educational/occupational choice.

The ultimate issues will reduce to two more or less independent themes:

- The share of public/private responsibility in providing for/satisfying an ever-growing demand for education, especially at the postsecondary level.
- The nature/location/duration of what is taught.

On the first issue, there will be a gradual shift towards alternative financing mechanisms to those now prevalent. Cost-recovery in education will become increasingly acceptable from a political point of view [Jimenez, 1987].

On the second issue, greater emphasis will be put on the out-of-school formation of skills, like in industry. And the nature of the curriculum will shift more towards general communication skills rather than narrow vocational courses.

Such developments will, in my opinion, allow for the creation of a more flexible labour force, able to adapt quickly to humanly unforeseen changes in the nature of the economy.

A Research Agenda

The emerging issues described above will dictate the nature of the research frontier in this area.

In the 1960s and 1970s, research pertaining to the relationship between education and the economy was dominated by manpower forecasting. As mentioned earlier, experience with such forecasting has been most disappointing: it has failed to either predict or influence educational development to either fit or stimulate economic growth, to match supply and demand, or eliminate labour excess or shortage. Also, research on substitution possibilities between different types of occupations and education will be a thing of the past: we do know that such a degree of substitution is on the high side.

The frontier of research is likely to be on the following themes:

- Who pays and who benefits from public expenditure on education? Is it really the poor that subsidize the education of the rich? This is not a new theme, but one on which further results will greatly influence public/political opinion on the need to share the financial burden of education.
- The willingness of families and individuals to pay for acquiring the level and type of education they wish – rather than what is offered free to them by the state. This is a very important issue regarding the choice between general and vocational education.
- More cost-effective modes of educational delivery, including on-the-job/in-service training, distance learning systems and length of schooling for literacy acquisition and retention in developing countries.

Appendix

The Relationship between Technology, Employment and Skills in the United States

The majority of the literature on this topic is confined to studies of single industries or occupations, thus ignoring the economy-wide impacts of specific technological changes. In principle, one must have knowledge of the economy-wide effects before coming up with a reliable evaluation of the impact of technological change.

All the aggregate studies on this issue use the input-output framework. Input-output analysis is based on the estimation of "input-output coefficients" which describe the amount of labour required by this and other industries. The effect of technological change on these coefficients must be estimated, and final demand for each good must be projected in order to forecast the employment impact of new technologies. The input-output coefficients in many cases are invariant with respect to price: doubling the cost of an input need not affect the amount of that input consumed by an industry. Thus most forms of input-output analysis can account *only* for changes in interindustry relationships that are based on the technologically driven substitution of one input (e.g., capital) for another (e.g., labour).

Recent applications of input-output methodology to the analysis of the employment effects of new technologies largely ignore changes in final demand and in the demand for inputs that result from changes in price. This means that there is no link between growth in labour productivity and growth in demand within a specific industry. Because input-output analysis typically projects the existing matrix of output and input requirements forward in time, predictions based on this methodology also have difficulty incorporating the employment effects of product innovation.

One such study is by Howell [1985] who used an input-output framework to forecast the employment effects of industrial robots. His methodology resulted in projections of the use of robots in each of 86 industrial sectors in 1990. His main conclusion was a net decrease of 3.7 per cent in manufacturing employment in 1986 (or 0.7 per cent in total employment). Such methodology may overstate potential employment displacement since it does not consider increases in employment that might result from reductions in price and increases in demand associated with the diffusion of robotics technology.

A more extensive study was conducted by Leontieff and Duchin [1986]. They studied the effects of computer technology on employment. They concluded that widespread use of computer technology would reduce employment in the year 2000 to approximately 8-12 per cent below the levels that would be needed to produce this output with an unchanged technology. Some of the crucial assumptions of this study are:

1 The quantity of labour displaced as a result of computer diffusion was based on limited evidence from case studies.

2 Rates of diffusion and technological change were assumed to be rapid, but the authors did not allow for any output and employment expanding effects of reductions in the costs of clerical and other functions as a result of technological change and productivity growth.

3 They allowed for advances in *only* one technology.

The most recent aggregate projections of employment that incorporate effects of technological change were prepared by the U.S. Bureau of Labor Statistics (BLS) in 1986. The BLS used a system of five interconnected economic models to project growth in the labour force, the level of aggregate economic activity, each industry's output of goods and services, and each industry's demand for labour. Table 9-10 provides a summary of some of the findings.

Young and Lawson [1986] conducted a retrospective analysis of the employment effects of technological change by decomposing the growth in employment from 1972-84 into changes resulting from growth in final demand and those resulting from technological advance. Their main results were: technical change from 1972-84 reduced labour requirements per unit of output in 65 of 79 industries; changes in final demand during this same period affected some or all of the decline in labour demand in 73 of the 79 industries; the labour saving effects of new technologies were more than offset by growth in final demand, i.e., total employment expanded.

Given the above studies, it is hard to justify the public pessimism concerning the employment effects of technical changes.

Cyert and Mowery [1987] report the results of a panel on the debate over the employment impacts of technological change. These issues include the effects of technological change on levels of employment and unemployment within the U.S. economy; on the displacements of workers in specific industries or sectors of the economy; on skill requirements; on the welfare of women, minorities, and labour force entrants in a technologically transformed economy; and on the organization of the firm and the workplace. The following paragraphs contain a listing of the most important findings of the panel.

Table 9-10

Occupations with 25,000 or More Workers Forecast to Experience Net Employment Declines Due in Part to Technological Change, 1984-95

	Employment in 1984	Net employment decline 1984-95	Share of decline
	(Per thousand)	(Per thousand)	(Per cent)
Occupation:			
Stenographers	239	–96	40
Industrial truck and tractor operators	389	–46	12
Postal service clerks	317	–27	9
Station installers and repairers, telephone	111	–19	17
Stock clerks	788	–16	2
Statistical clerks	93	–12	13
Payroll and timekeeping clerks	207	–11	5
Central office telephone operators	77	–9	11
Order filers, wholesale and retail sales	226	–7	3
Service station attendants	303	–6	2
Directory assistance telephone operators	32	–2	7
Total decline	–	–251	–

SOURCE United States Department of Labor, *Occupational Projections and Training Data*, U.S. Bureau of Labor Statistics, Bulletin 2251 (April 1986*b*).

Employment and Wage Impacts of Technological Change in an Open Economy

Historically, technological change and productivity growth have been associated with expanding rather than contracting total employment and rising earnings. The future will see little change in this pattern. As in the past, however, there will be declines in specific industries and growth in others, and some individuals will be displaced. Technological change in the U.S. economy is not the sole or even the most important cause of these dislocations.

The adoption of new technologies generally is gradual rather than sudden. The employment impacts of new technologies are realized through the diffusion and adoption of technology, which typically take a considerable amount of time. The employment impacts of new technologies, therefore, are likely to be felt more gradually than the employment impacts of factors such as changes in exchange rates. The gradual pace of technological change should simplify somewhat the development and implementation of adjustment policies to help affected workers.

Within today's international economic environment, slow adoption by U.S. firms (relative to other industrial nations) of productivity increasing technologies is likely to cause more job displacement than the rapid adoption of such technologies.

The rate of technology transfer across national boundaries has grown; for the United States, this transfer increasingly incorporates significant inflows of technology from foreign sources, as well as outflows of U.S. research findings and innovations.

Technology and the Characteristics of Tomorrow's Jobs

New technologies by themselves are not likely to change the level of job-related skills required for the labour force as a whole. The panel does not project a uniform upgrading or downgrading of job skill requirements in the U.S. economy as a result of technological change. This does not deny the need, however, for continued investment and improvement in the job-related skills of the U.S. work force to support the rapid adoption of new technologies that will contribute to U.S. competitiveness.

Technological change will not limit employment opportunities for individuals entering the labour force with strong basic skills. The most reliable projections of future job growth suggest that the number of jobs in the broad occupational categories accounting for the majority of entrant employment will continue to expand. Combined with a projected lower rate of growth in the entrant pool, this conclusion suggests that labour force entrants with strong basic skills (numerical reasoning, problem-solving, literacy, and written communication) will fare well in the job markets of the future.

Technology and Work Force Adjustment

A substantial portion – from 20 to 30 per cent – of displaced workers with job experience lack basic skills. These workers often remain unemployed longer and have difficulty finding new jobs without incurring significant wage reductions. In view of the fact that technological and structural change in the economy will place increasing demands on the ability of workers to adjust, experienced workers who lack basic skills will face even greater difficulties in future job markets.

The evidence suggests that displaced workers who receive substantial advance notice of permanent job loss experience shorter periods of unemployment than workers who do not receive such notice.

The primary federal program for displaced workers, Title III of the Job Training Partnership Act (JTPA), emphasizes the rapid placement of workers in new jobs. It does not appear to serve the needs of many displaced workers.

Displaced worker adjustment assistance programs reduce the duration of unemployment after displacement and result in higher wages in new jobs obtained immediately after participation in such programs.

The Sources and Rate of Technological Change

Non-technological, managerial, and organizational factors powerfully influence the adoption of new technologies and the impact of their adoption on product quality, labour productivity, and the skill requirements of labour.

A work force that is well trained in job-related skills, and therefore capable of adopting new technologies more rapidly, can improve the ability of U.S. firms to remain at the technological frontier and to compete more effectively in international markets.

The rate of technological change in the United States does not appear to have increased in recent years.

Labour Supply and Demand

An average of more than 1 million experienced workers (those with at least three years' tenure in their jobs) were displaced each year from 1979-83.

Workers with higher levels of training in job-related skills experience shorter spells of unemployment after layoffs than workers without such training.

The rate of growth in the U.S. labour force is projected to be considerably lower during the next decade than it was from 1975-85.

The economic returns from higher educational attainment within the U.S. labour force have increased substantially since the 1970s.

Serious gaps persist in the level of secondary educational attainment of whites, blacks, and Hispanics within the U.S. work force, although these gaps have narrowed in recent years.

The dynamic character of U.S. labour markets, combined with the gradual pace of technological change, should ease worker adjustment to such change.

The level of demand for U.S. labour, especially in manufacturing, has been affected by declines in the international competitiveness of many U.S. industries.

The rate of decline in the manufacturing sector's share of total employment has accelerated during the past seven years. In addition, wage losses incurred by the small stream of workers moving involuntarily from manufacturing to non-manufacturing industries have increased.

Review of the Studies of the Impact of Technological Change on Employment, Skills, and Earnings

Forecasting the sectoral or occupational impacts of technological change is extremely difficult.

Technological change does not appear to be responsible for growth in the inequality of the distribution of household incomes during the past two decades.

Assessing the effect of technological change on occupational structure and entry-level job skill requirements beyond basic skills is fraught with uncertainty.

Differential Technology Impacts: Black Workers, Female Workers, and Labour Force Entrants

The negative employment impact of technological change within specific occupations will have little if any effect on the future employment prospects of black workers.

As in the case of blacks, the employment-reducing impacts of technological change within specific occupations, which are small in the aggregate, will have little effect on the employment prospects of women.

Labour force entrants from minority groups often have low levels of educational attainment that imply weak basic skills and that impair the adjustment of these groups to technological change.

Technological Change and the Work Environment

A "two-tiered" work force, which might develop as a result of decreases in career mobility within the workplace and reductions in the skill requirements for some jobs, does not appear to be an inevitable result of technological change.

Management policies (including retraining for other jobs within the firm, advance notification of the introduction of new technologies, or labour-management consultation on the introduction of technology) that help workers adjust to technological change often benefit both management and labour by allowing more rapid introduction of new technologies without significant production losses or other disruptions.

The direct and indirect impacts of technological change may pose significant challenges to the structure of health and safety regulations, while also contributing to the reduction of workplace hazards.

Current Policies for Worker Adjustment

Some federal policies for dealing with displaced workers, such as Trade Adjustment Assistance (TAA), have differentiated among these workers by the cause of their displacement. This program design has resulted in the inequitable treatment of different groups of displaced workers and frequently has introduced long delays in the delivery of assistance.

Existing unemployment compensation policies provide income support during temporary layoffs, but they do not deal effectively with the problems of long-term displacement.

The training system as a whole appears to be highly responsive to the changing demand of employers for new job-related skills.

Forecasts of detailed skill requirements for the U.S. economy historically have been inaccurate and of marginal value.

Commentary by Jeannine David-McNeil

As the year 2000 looms ever closer, many countries are taking a hard look at the quality and relevance of their educational systems in light of the challenges the next century will bring.

The United States would like to reduce the drop-out rate in its schools and improve the quality of its teaching corps. France is worried about the consequences of too-early qualitative selection of its young people. The Soviet authorities are concerned that there is a gap between what is taught in their school programs and the realities of the modern world. Despite the enviable success of its students, Japan realizes that there are some deficiencies in its educational system, such as ferocious competition among students and the lack of emphasis on creativity. West Germany is trying to move away from overspecialized programs and towards more general education. The British educational system is currently in the midst of reform that will culminate in year-round testing of academic performance. In all these countries, despite differences in culture and traditions, there is a growing awareness that education is the key to their economic future.

In Canada, politicians, business and union leaders, and parents have on numerous occasions given our school system failing grades. Can the training now being given to young Canadians produce the human resources that our country will need to preserve and improve its competitive standing? According to the paper presented by Mr. Psacharopoulos, the debate over the kind of education needed as we approach the year 2000 can be elucidated by an examination of several salient issues.

Mr. Psacharopoulos provides an excellent summary of the main schools of thought and of how economic theories fall short in explaining the relationship between education, labour market, and economic growth. Overall, I am in complete agreement with Mr. Psacharopoulos' analysis. It would have been interesting, however, had he chosen to try to identify the problems involved in forecasting human-resource needs. Is the inaccuracy of such predictions due to the methodology or to the quality of statistical data? I feel that, in Canada, the primary cause of the limitations and errors of manpower forecasts is the lack of statistical information on labour force characteristics and business initiatives. It is difficult to predict the manpower requirements of the Canadian economy on the basis of an occupational classification system that is reviewed at 10-year intervals and vague estimates of the investment habits of Canadian businesses. In light of past experience, should we abandon all human-resource planning efforts or should we instead press the government to supply more disaggregated and up-to-date information on the labour force? In my opinion, predictions of human-resource requirements are an essential guide for employment, manpower, and economic policy. Manpower surpluses and shortages have high economic costs, and they can interfere with economic development objectives.

Mr. Psacharopoulos ends his presentation with a list of the challenges that industrialized and developing countries will face in the next 10 years: the fight against illiteracy, education funding, and the new skills required by technological change. Let us continue this line of thought by attempting to pinpoint some of the specific challenges that the Canadian educational system will face by the year 2000: reorganizing the funding arrangements for universities and school boards, and revising curriculum content.

Financing Education

Because of the historical division of responsibility between the provincial and federal governments, education funding remains a delicate topic in the Canadian context. However, let us attempt to by-pass the polemics surrounding the roles of the two levels of government in order to identify the aspects of education financing in Canada that will most urgently require reform between now and the year 2000. There are two main questions: If the current level of spending on education is maintained, will it be possible for Canada to maintain or improve its competitive standing internationally? And is it possible to improve Canada's educational system within the budgetary constraints currently facing our teaching institutions?

It is universally acknowledged that adequate education funding is prerequisite to achieving national economic objectives. Once a country understands that economic growth and education go hand-in-hand, education necessarily becomes a government priority. In Canada, there is an urgent need to make the guardians of the country's economic future more aware that the severe under-funding that Canadian educational institutions have had to live with for the past several years has important economic consequences.

At the present time, large budget deficits have forced universities and school boards to pare their expenses to a point where the quality of education is in jeopardy. They have been postponing purchases of laboratory equipment, reducing the size of library collections, cutting back on purchases of microcomputers and textbooks for primary and secondary students, participating less actively in conferences and learned societies, and reducing or freezing the wages of teaching personnel in real terms. When such measures are maintained from year to year, the quality of education inevitably suffers.

Table 9-11 shows that, when inflation is taken into account, real per-capita expenditures in Canada on education have not increased since 1980.

Table 9-11

Education Expenditures, Canada, 1975-84

	Total per capita	
	(Current dollars)	(Constant dollars)
1975	570	570
1980	923	607
1984	1,270	607

SOURCE Statistics Canada, *Education in Canada*, 1986.

Despite tight budgetary constraints, however, the percentage of Canada's gross national product (GNP) devoted to education remains higher than in many other industrialized countries (Table 9-12).

It may seem inappropriate, in a context of large budget deficits and high individual and corporate tax rates, to press government officials to urgently review the funding of educational institutions. Is it in fact possible to increase education budgets without compromising efforts to balance government budgets?

As Mr. Psacharopoulos points out, education has traditionally been provided mostly free to individuals; it is

Table 9-12

Gross Education Expenditures (GEE) as a Percentage of GNP, Selected Countries, 1975-84

	1975	1980	1984
Canada	7.8	7.5	7.6
France	5.2	5.1	5.8*
West Germany	5.1	4.7	4.5*
Japan	5.5	5.9	5.7*
Sweden	7.1	9.1	8.0*
United Kingdom	6.5	6.9	. .
United States	6.7	5.7	5.3*

*Most recent available data (1982 or 1983).

SOURCE UNESCO, *Statistical Yearbook*, 1986.

financed almost entirely by governments. Diversifying the sources of education financing, particularly at the postsecondary and university levels, would help to reconcile the objective of providing adequate education financing with that of reorganizing public finances.

There have been a number of attempts in recent years to find alternative sources of education funding, notably efforts to forge stronger links between universities and the business community.

A number of organizations are now providing financial assistance to teaching institutions. They are sponsoring programs or research centres, financing the development of new courses to address their particular human-resource training requirements, and donating equipment, computer hardware, and services. Through such agreements, the private sector contributes both to educational funding and to educational quality. Some organizations provide assistance to the educational sector only in response to financing campaigns. If it is truly committed to relevancy in education, however, business should consider establishing closer and more permanent ties with teaching institutions.

Individuals, too, help reduce the budget deficits of teaching institutions when they accept higher tuition fees. Over the last 30 years, university tuition in Quebec has remained the same while operating expenses have risen with inflation. Clearly, however, tuition fee adjustments should only be considered for higher education; compulsory schooling should remain free. Imposing higher student outlays likely serves to discourage "free-riders," to arouse public interest in the educational system, and to enforce a fairer split of education costs between the individuals enrolled in the various programs, on the one hand, and taxpayer-supplied government transfers, on the other. Government funding of postsecondary institutions and universities should be maintained at equitable levels, since they actually constitute transfers between taxpayers (some of whom have quite low incomes) and students who, for the most part, hail from the better-off ranks of society.

Will it be possible to resolve the financial difficulties of school boards and postsecondary teaching institutions between now and the year 2000? This objective should be accorded a high priority; otherwise, there is little hope that Canada's educational systems can contribute to the country's economic development. In their attempts to reform education funding, governments have begun by curbing the growth of expenditures. Budgetary cost-cutting now threatens to endanger the quality of education. It is time to consider increasing the revenues of teaching institutions. Given Canada's aging population, which will lead to declining school enrolment, the enrolment-based financing formula for education should be revised. Otherwise, the survival of certain institutions that are crucial to economic growth – because of their reputation for excellence or the strategic role they play in economic growth in particular regions – may be jeopardized.

One of the challenges of the next 10 years will be to provide adequate funding for the educational system while respecting the principles of free schooling and shared provincial-federal jurisdiction and while remaining within the budgetary constraints of the governments involved.

Educational Content

Many economists interested in education restrict their research primarily or exclusively to the relationship between expenditures or the number of graduates and the economic performance of a region. Because of the problems involved in quantifying educational content, research on the links between the quality of education and economic growth has tended to be neglected. In its report *Education in Modern Society*, the OECD pointed out the influence that educational content has on the economy:

> [It is coming also] to be recognized that education's role in preparing and fostering non-cognitive traits, and values and attitudes more generally, may be just as critical a part of its impact upon the economy as its transmission of technical, cognitive knowledge and skills. Thus, education's role in equipping the populations of OECD countries for the economy and their working lives extends well beyond providing the 'right' level and mix of knowledge and skills, important though this is. It has a far-reaching, if often intangible, effect upon such factors as productivity, entrepreneurial attitudes, saving and consumption habits, attitudes to innovation and to job satisfaction, industrial relations. [. . .]

> In sum, education has to prepare people for a rapid and complex world of change and is itself a powerful vehicle that facilitates and guides this change. [OECD, 1985, pp. 105-106]

In his paper, Mr. Psacharopoulos notes a number of areas where educational quality will affect future economic development: illiteracy rates, the balance between general and vocational training, and the choice of occupational specialties. Are these educational issues of the year 2000 relevant in the Canadian context?

Illiteracy

Canada is no stranger to illiteracy. According to the Southam Literacy Survey, 4.5 million Canadians – 24 per cent of the population aged 18 and older – are unable to read, write or use figures, even at a basic level [Government of Canada, 1988, p. 9].

In developing countries, higher spending on education can have a significant impact on illiteracy rates. In industrialized countries, however, the solution to the illiteracy problem lies more in improving educational content than in improving access to education. Our Canadian school programs must be reworked to make them more attractive to adolescents (so they will stay in school longer) and to ensure that the teaching methods and program content will give young Canadians the basic skills they will need to function in today's world. According to the Southam Literacy Survey mentioned earlier, "more than half of those identified by the test as functionally illiterate claimed to have attended high school, one third claimed to be high school graduates, and 1 in 12 to be university graduates" [Southam News, 1988, p. 7].

In light of these observations, it appears that a serious examination is needed of educational quality and the testing tools used at the various educational levels. There is no miracle solution for solving the problem of school failure. It is important to remember, however, that it is socio-economically and culturally disadvantaged individuals who experience the most difficulty in school and who drop out more frequently. Thus it is not enough, when attempting to reduce illiteracy rates, to set absolute targets for educational quality and academic performance; we must also ensure that educational content, teaching methods, and testing tools are designed not to impede the chances for scholastic success of children from disadvantaged backgrounds (the poor and ethnic and cultural minorities). This is an important goal because academic achievement is closely correlated with future success in attaining permanent, well-paying jobs. In light of the potential problems facing the Canadian economy in the next century as a result of an aging population and possible labour shortages, illiteracy must be fought as vigorously as possible in order to ensure that our human resources are utilized as effectively as possible.

Educational Programs

Educational programs have often come under fire for providing overly general and abstract knowledge, offering too many options and too much individual choice, using permissive teaching methods, and presenting excessively broad curricula. According to some critics, the reason the Canadian educational system has not been successful in instilling adequate basic cognitive skills is that it is oriented more towards providing information than towards providing instruction. Recently, the poor showing of Canadian primary and secondary students in an international test of scientific knowledge has led researchers to point out that the number of days of class and length of the school day are much lower in Canada than in the more highly rated countries.

It is an extremely complex task to measure and identify all the variables affecting the quality of a given educational system. This is no reason, however, for the government not to try. Assessing the relevancy and quality of education should be an ongoing concern of the authorities, since, in a dynamic economy, educational programs need to be revised regularly to take into account society's changing economic needs and aspirations.

Everyone agrees that a well-trained work force is essential to achieving a society's economic objectives. Disagreement starts when attempts are made to define what constitutes "good" education. The relative balance and weight that should be given to general culture, core curriculum, and specialized studies is a subject of constant debate, and opinions vary widely among the various parties involved: governments, teaching institutions, businesses, parents, and students. All are seeking the kind of "education" that will produce graduates able to cope with and be productive members of society, as well as able to adapt to the ever-changing demands of the labour market throughout their working lives. The expectations for education are thus many and diverse. Considering the budgetary resources available to governments for carrying out this mission, do we expect too much of education? If so, the most important goals of education must be determined and the specific responsibilities of the various sectors must be clearly and realistically spelled out.

It is difficult to predict with any accuracy what the demands of the labour market will be like in the next 10 years.

We do know that there will be drastic changes in a number of occupations and skills. Some skills will become obsolete. New occupations will require different sets of skills than those in demand today. It is essential, therefore, to ensure that young people do not leave school equipped with outmoded skills or with diplomas in declining specializations, and that educational programs are designed to develop the type of knowledge base that will allow new skills to be acquired easily. Because change is so rapid, education must try to inculcate a desire for lifelong learning. Program content must be subject to constant review in order to keep it in tune with a job market in constant flux.

Since education is a provincial responsibility, what role should the federal government play in guiding the content of Canadian education? In the field of science and technology, the federal government has recently demonstrated that it can act effectively as a trigger or catalyst to guide the orientation and initiatives of provincial governments. The federal government has a responsibility to provide leadership and information, and to encourage and support provincial efforts to upgrade the relevance and quality of their educational systems in accordance with national objectives. Federal involvement in education should be directed at the qualitative aspects of the learning process, rather than at the way the education is organized and structured.

Conclusion

Education must be attuned to both economic developments and social goals and must play a role in their evolution. Education policy must strike a balance between the changing needs of the labour market and the long-term mission to provide a well-rounded education.

The role of the federal government is to provide the leadership needed to jointly develop human-resource training objectives that are compatible with economic development strategies. Implementing educational policies in order to meet these expectations is the job of provincial governments. Business and communities should be consulted and actively involved at both these levels.

Education is an instrument of economic policy, not purely a social cost. Education spending, in the medium or long terms, is a source of revenues and wealth. Adequate funding and appropriate content for the educational system are prerequisite to sustainable economic growth.

IV Environmental and Institutional Framework for Economic Policy

The first three sections of this volume established clearly that Canada must be able to adjust and adapt in order to meet the challenges posed by international competition and cooperation. However, a country's ability to adjust and adapt depends to a large degree on the nature of its institutions, on its governmental and judicial structures, and on its process of decision making. That aspect – decision making in economic policy development – serves as the underlying theme of the papers in this section. Canada's institutional framework is analysed from various perspectives in order to provide a critical analysis of its ability to implement the policies that will be needed to meet the economic, demographic, and environmental challenges posed by globalization.

Three aspects of the decision-making process are singled out for attention by the authors. First is the importance of social, economic, and political consensus, which serves as a crucial support of governments' attempts to take concrete initiatives and to make the necessary changes. This discussion leads inevitably to a second aspect of decision making: the ability of Canadian institutions and decision-making authorities to generate this kind of consensus and so to respond to global pressures. This, in fact, is the central theme of the second paper, which examines the particular difficulties inherent in the Canadian federal system, under which power is divided among 11 different governments, difficulties that become apparent when the need to develop national strategies becomes urgent. Third and last, any discussion of decision making would be incomplete without a study of the process' raw materials, i.e., expertise, the role of advisers, and the relevance of the advice they supply to decision makers. Since we are interested here in economic policy, the third paper in this section focuses on the role of economic advisers in decision making. In this paper, doubt is raised about the ability of the economic discipline to offer solutions to the problems identified in the preceding sections. It becomes clear from the analysis that, among other things, the relationship between theoreticians and practitioners is crucial to establishing and sustaining social consensus.

Consensus and Economic Performance

In the first paper, then, Ian Stewart examines the importance of social, economic, and political consensus as a factor in economic performance. Such consensus, he feels, has a crucial role to play in guiding Canada's strategic response to the various global forces and international pressures. At the present time, a process of politicization and fragmentation appears to be under way in Canadian society; these tendencies hinder efforts to reform economic, social, and industrial policies and to map out national strategies. If this lack of consensus is allowed to endure, the quality of our economic policies and economic performance could well be jeopardized.

Stewart shows how Keynesianism, born of the events associated with the Great Depression, gave birth to a unique period of history that he calls the golden age of consensus. Keynesianism, which went far beyond Keynes' contributions to macroeconomic theory, gave capitalist democracy its ideological and political foundations by allowing the state to reconcile private ownership of the means of production with democratic management of an economy centred on full employment and equitable distribution of income. And this Keynesian consensus led to the establishment, following the Bretton Woods conference, of such international institutions as the International Monetary Fund (IMF), the General Agreement on Tariffs and Trade (GATT), and the World Bank. In the industrialized nations, a strong Keynesian consensus, coupled with a period of buoyant economic growth, enabled the welfare state to flourish without triggering (as is the case today) grave concerns about international competitiveness.

The author surveys the economic forces and intellectual and ideological currents that served to erode the Keynesian consensus throughout the 1970s and 1980s, and to finally sweep it away in favour of a new orthodoxy that espouses market efficiency and denounces government interventionism. Among these factors should be mentioned a crisis in economic thought that ended the consensus of advice given to public decision makers. That theme is taken up in greater detail by Alan Blinder in the last essay of this section.

According to Stewart, the new orthodoxy aims at consensus based on economic and political liberalism; it believes in individualism, privatization, deregulation, and market efficiency; it views the welfare state as an impediment to efficiency and motivation, and advocates the scaling-down of the role of government in general. This philosophy puts the emphasis on liberty and individual responsibility.

The author believes, however, that this new orthodoxy faces a number of challenges before it can lay claim to the prescriptive and consensual mantle of Keynesianism doctrine. Keynesian consensus seemed to offer solutions to the two weakest aspects of market economies – distribution and redistribution. The reform of these two systems is prerequisite to the achievement of a consensus on the policies needed to improve economic performance. Similarly, on the international scene, the author notes that the Brundtland Commission advocates the adoption of laws, regulations, and public policies, as well as greater cooperation between nations in general, stressing, above all, the need for equity at the international level. These are policies and values that the new orthodoxy appears to reject.

Stewart does not advocate a return to the Keynesian policies of yesteryear, however. To encourage social consensus, he contends, we must respond to the challenge of the state's expanding role and we must direct governments back to the road of efficiency, effective management, and accountability. He suggests focusing on the role of collective goods and their efficient provision. For Stewart, the efficient and effective design of such collective goods is essential in order to achieve the type of consensus that will foster a healthy economy and strong economic performance. He proposes reforming the social order to make equity the complement of efficiency, rather than its opposite. Without claiming to present a new blueprint for society, he puts forward a set of essential components for a new public philosophy based on the provision of collective goods.

Stewart suggests, first, adopting effective policies to address the problems of distribution and redistribution of income. Reform of the Canadian tax and transfer systems is crucial to this effort, not only to reduce the overall load on public finances, but also to end the dependency and disincentive produced by too high implicit tax-back rates and to meet impending demands for new social benefits. Stewart claims that only radical reform – reform that shows clearly how the programs are financed and administered and that seeks broad community consensus on the equitability of the proposed results – has any chance of success.

Second, the author proposes that the quality of the educational system be subjected to a wide-ranging examination and that the public funds devoted to education be increased. He also recommends that more public money be spent on housing and on infrastructure development, particularly in the areas of communications and incentives to innovation. Finally, he suggests that special attention be accorded to the question of immigration, so that this issue does not turn into a troublesome source of internal discord and economic disruption.

Third, Stewart adopts an international perspective in order to outline the enormous challenges that the environmental constraints so well described by the Brundtland Commission may pose for the application of consensus-derived economic policies in the years leading up to 2000. The author stresses that humanity must develop new principles and new standards of behaviour if private practices are to be reconciled with the public interest. Stewart views the environmental challenge as fertile terrain for the development of a common sense of public goods.

Observations on environmental issues are cited to support the author's contention that the public's acceptance and understanding of the nature of public goods are as critical to economic performance as the effectiveness and efficiency of their design. The cultivation of social consensus relies on "collective decisions" about what is and what is not a public good and about how these public goods can be supplied and financed. In Stewart's view, these collective decisions make up the consensual base that allows efficient market operation and healthy economic performance.

The "new public philosophy" outlined by Stewart has several points in common with the concepts of the welfare state and the social contract discussed in Section II by Lars Osberg. Stewart would agree, for example, that the centre of the "broader" welfare state concept is the provision of common public services. Moreover, Osberg's emphasis on the notion of community – a common collective culture based on practical foundations of social organization – finds an echo in Stewart's contention that collective decisions influence the nature and other characteristics of public goods. The two authors also agree on the prime importance of economic equality (what Tom Courchene called "equality of opportunity") as an intrinsic component of most public goods (e.g., education, environment, and health). The two authors also share the same point of view on the necessity and importance of achieving true consensus within the community on reform of the tax and individual transfer systems and on the equity of the desired results. Still, there are some significant divergences in these two visions. For Osberg, the social contract turns upon elaborate tax and transfer systems within which the insurance and assistance functions remain inseparable. The inefficiencies and economic costs produced by such a system are considered negligible beside the social costs involved in economic adjustment bereft of consensus. Stewart, on the other hand, sees consensus as based on collective decisions that include a large body of public goods, not simply the redistribution system. Stewart also takes note of the growing financial constraints faced by governments and argues that the primary objective of tax and transfer system reform should be greater efficiency. He echoes John Helliwell in calling for the abandonment of the "safety net" in favour of a "springboard"; in Osberg's framework, this concept has more in common with the limited welfare state model than with the broader welfare state.

The commentary offered by Richard Simeon agrees with the thrust of Stewart's analysis, particularly with respect to the importance of the production and design of collective goods and the importance of social consensus for economic performance. These conditions are dictated by the fact that modern pressure groups are able to block change. The participation and approval of people affected by change have become prerequisites to the adjustment process.

Simeon notes an important issue unfortunately left unaddressed by Stewart's paper: the capacity and effectiveness of our political institutions for building such a social and political consensus. He notes that the task is not an easy one in Canadian society, which is characterized by major regional and sectoral differences and by the sharing of political authority among 11 different governments.

Unlike many European countries, Canada has never developed tripartite or neo-corporatist mechanisms to ensure cooperation among the social partners. According to the author, the current government does, in some respects, espouse a consultative model in its approach to business and the provinces, but it is a process aimed at an elite. He contends that the lesson of the free-trade and Meech Lake debates is that the consultative process must be broadened to include a wider range of groups and to involve them at an earlier stage.

For many commentators, notes the author, Canadian federalism, with its emphasis on regional interests and its system of divided responsibilities, represents a major obstacle to the development and nurturing of consensus. Our relatively decentralized version of federalism, they say, constitutes a barrier to effective adjustment and the development of national strategies. The time that governments spend haggling among themselves slows down the decision-making process. Their prescription for meeting the challenges of global competition is greater centralization.

Simeon takes issue with this commonly held point of view, suggesting that Canadian federalism possesses some hidden virtues. The provinces are much more homogeneous and manageable entities. They are much more apt to develop coherent, integrated adjustment policies than a federal government that must balance a variety of regional interests. Like Tom Courchene, Simeon perceives an experimental value in decentralized federalism, in the sense that a wide variety of economic and social policies can be simultaneously put to the test. The provinces are also in a better position than the federal government to promote consultative cooperation among the social partners. It may be at the provincial level that European-style tripartism will best be able to develop. Moreover, to the extent that the provinces are able to develop effective adjustment policies suited to local needs, the burden of decision making and consensus building that falls upon the federal government becomes much more manageable.

Simeon argues that, in the long run, the global trends will work towards a diminished role for the federal government. Its powers will tend to ebb away in two directions – upward towards supranational institutions, which will become increasingly important as the distinctions between economies and international policy break down, and downward towards smaller government units more flexibly attuned to the adjustment needs of smaller communities.

Economic Decision Making in the Year 2000

The second paper of this series, written by Al Johnson, continues the debate begun by Richard Simeon on the capacity of decision-making institutions and structures in Canada to build consensus and respond to the demographic, environmental, and economic pressures that come into play at the international level. Johnson begins by echoing previous participants, pointing out the two powerful but conflicting sets of forces facing policymakers. On the one hand, there are external pressures stemming from globalization, and, on the other, there are economic and social pressures on the domestic front, reflecting the increasing need for security and identity in an unstable world. How will politicians and decision makers perceive and react to this dilemma? What kind of institutional impediments will they encounter? In order to respond to these questions, Johnson summarizes the nature of these world pressures and their impact on national administrations. This exercise leads him to an assessment of Canada's ability to adjust on the basis of six criteria.

First, Johnson looks at the nature of Canadian society and its "openness" (or lack of it) to the outside world. He notes that, because of tensions between Canada's various cultures and regions and because of its sparse population, Canada tends to be preoccupied with itself. Our political dialogue has been primarily inward-looking. Canada's politicians have been preoccupied with reconciling the differences between Quebec and the rest of the country, as well as other regional differences, and with defining the identity of the Canadian nation. This national obsession with soul-searching has limited our vision of the outside world and our ability to respond to the changes that are taking place around us.

Johnson's second criterion is the extent to which institutional arrangements reinforce this inward- or outward-lookingness. The author notes that the evolution of Canada's public institutions over time has tended to reinforce the emphasis on regional issues in policy debates. One need only look at the conferences of federal and provincial first ministers, which seem to be replacing Parliament as the forum where provincial interests are represented and reconciled in one way or another with national interests. In debates on issues that have special relevance to Canada's ability to respond to global pressures, regional and provincial interests and concerns have generally prevailed over national interests and priorities.

Another factor that adversely affects Canada's capacity for adjustment is a lack of will, on the part of its political leaders, to meet the new global challenges; they prefer instead to concentrate on domestic issues. This lack of political will reflects general public ignorance of the forces at work in globalization.

Another obstacle to adjustment is the fact that the powers available to the Canadian government to encourage adaptation to global pressures are limited by the Constitution. Often, it is the provincial governments that have the power to decide what action ought to be taken in such areas as education, labour relations, and the regulation of activities like investment dealing and insurance. In other areas, such as environmental laws, legislative authority is divided between the two levels of government.

Johnson believes that the constitutional mechanisms that allow overriding national priorities to take precedence over provincial concerns have been weakened by the Meech Lake Accord. He points, in particular, to the provisions of the agreement with respect to such matters as the federal government's spending power and the formula for amending the Constitution.

Another central condition is the existence or absence of mechanisms through which the public, private, and non-government sectors of society can arrive at some degree of consensus on the direction of economic and social adjustment. The author finds, however, that the record of cooperation between the public and private sectors has not been encouraging. The traditional division of roles and responsibilities between the two sectors with respect to adjustment in the private sector and to social adaptation has created a gulf that precludes any kind of consensus between them.

The sixth and last factor is the demonstrated ability of the country to generate appropriate policy responses to external pressures. Johnson believes that Canadians have not displayed much interest in improving the production inputs that could enhance the country's competitiveness: technological advances, improvements in education and research, and design and innovation, to name but a few. The author also qualifies the federal government's record in facilitating sectoral and industrial adaptation as largely an adventitious one.

The author concludes from this examination of Canada's past performance that the most discouraging phenomenon is the number of urgent policy issues that, for political reasons or because of federal-provincial considerations, have become taboo: education, regional development, reform of the social security system, unemployment insurance, the spending power of Parliament, the Meech Lake Accord, and so on.

In the conclusion of his paper, Johnson proposes a series of changes to Canada's governmental and decision-making system. He begins by recommending the creation of a prestigious national committee, known as the "Governor General's Council," whose role would be to place issues of international importance on the political agenda and to keep national leaders and the general public informed about the challenges associated with globalization. The members of this Council would include representatives from the private, public, and non-government sectors. Its mandate would be to provide non-partisan analysis and assessment of questions of national importance and to identify future policy issues.

In order to involve the private sector and non-governmental organizations in policy development and to facilitate the emergence of a national consensus, the author proposes the creation of another national body to be known as the "Prime Minister's Council." Its mandate would be to aid and advise the Prime Minister in defining policy options.

Johnson also recommends that the constitutional powers of the federal government be strengthened, particularly its powers to make treaties and to regulate national and international trade. He suggests that the current constitutional proposals that would end up reducing the government's spending power be reconsidered, and he recommends that issues of national interest be singled out for attention at federal-provincial conferences.

Finally, the author advocates that a concerted effort be made to respond to the grievances of the various regions of Canada in order to make way for issues of international significance in the public agenda. He contends that the provinces now possess adequate constitutional powers to safeguard matters such as language, culture, and heritage. He also judges that their complaints on the economic front are unwarranted when viewed in the context of the progress that has been made. It must now be determined exactly what the provinces want, says Johnson. In the case of Quebec, he identifies the primary aspiration as the need to be recognized as a distinct society and cultural entity. The question of the concrete form that such recognition should take is at the centre of the debate over the Meech Lake Accord. Johnson suggests that the Quebec government's constitutional powers can best be clarified through an interpretation of the Accord's "distinct society" clause. He believes the basic aspirations of the West and of the Atlantic provinces are a desire for adequate representation in Parliament. For this reason, the calls for Senate reform must be satisfied.

In his commentary, Ian Macdonald expresses some reservations about Johnson's proposed new institutions. He argues that, in a democracy, the main problem is to convince the electorate that management problems at the global level have an effect on their personal lives and the lives of their communities. Only once this is accomplished can the political authorities make real progress in addressing those issues. What is needed, then, is both a reason for politicians to act and some guarantee that the public will understand what must be done.

Several major issues will test Canada's capacity to adjust to change in the near future. The author singles out the pressures stemming from immigration, the transition from a resource-based to an information- and knowledge-based economy, the need to train an entire generation in the conduct of international business, and the excesses and tensions in our major cities. These challenges can only be faced if Canadians come to appreciate the importance of these questions and the impact they will have on their everyday lives.

Rather than create new institutions, Macdonald recommends that Canadians strive to make their present institutions more effective. To this end he suggests, first, that Parliament and the legislatures come to be seen as serious bodies. Second, he recommends that the definition of conflict of interest be relaxed in order to enable more highly qualified individuals to enter government. Third, he argues that the federal government must assume more of a leadership role in education. In order to increase the efficiency of the federal-provincial conferences of first ministers, he proposes that they be open to the public and that they devote certain sessions specifically to global issues. He also recommends the creation of a forum where scientists and economists can come together to discuss issues of growth. He opposes any strengthening of the powers of the Supreme Court, which, in his view, have grown considerably with the adoption of the Charter of Rights. Democracy, he contends, is too important to be left to Supreme Court justices. And last, Macdonald lends his support to Johnson's call for an elected Senate.

Is the Discipline of Economics up to the Task?

The foregoing discussion of the importance of social consensus and the ability of decision-making institutions and authorities to react to global forces leads naturally to the final paper in this section, which looks at another aspect of the policy process – the role of economics in policymaking and the search for solutions to the great problems and challenges of the future. The paper by Alan Blinder examines the question "Is economics up to the task?" and surveys, from a macroeconomic perspective, what economics has to offer policymaking.

According to Blinder, the symbiosis that once characterized the relationship between theoreticians and policymakers has deteriorated. Policymakers find contemporary economic research far removed from the world they know and hence of little use. Academics, on the other hand, feel that policymakers are motivated by political concerns and more interested in looking good than in doing good.

The author believes that the main cause of this falling out lies in the disputes that split academia into several different camps. The end result was the replacement of Keynesian theory by new classical economics at the cutting edge of economic research. Because Keynesianism has traditionally been closer to reality and to policy formulation than the new classicism, its fall from grace has caused the connection between scholarship and policy to suffer.

Blinder defines Keynesian economics in terms of six main tenets: 1) both fiscal and monetary policy affect aggregate demand; 2) changes in aggregate demand, whether anticipated or unanticipated, have their greatest short-run impact on real output and employment, not on prices; 3) there is only a limited amount of flexibility in prices and wages; 4) involuntary unemployment exists and must be fought; 5) stabilization policy can reduce – and should strive to reduce – the amplitude of business cycles; and 6) combatting unemployment is more important than fighting inflation. The new classical economics would dispute each of these principles.

Why did the Keynesian paradigm fall from grace in the 1970s? Blinder rejects the claim that it failed because its empirical predictions did not measure up to reality. Instead, he argues that the ascendancy of new classical economics was a triumph of a priori theorizing over observation, of intellectual aesthetics over empiricism, and, in some measure, of conservative ideology over liberalism.

He attributes the decline of Keynesianism in academia to a number of factors: the sociological environment for economic research, which prizes technique and novelty over substance and usefulness; the economist's preoccupation with, and admiration for, abstract theory; and the general rise of right-leaning ideas worldwide. He argues that it was the new classical economics that failed to meet empirical tests by its inability to predict such major economic events of the late 1970s and early 1980s as the 1981-82 recession and the European depression. Empirical tests also cast doubt on the theoretical foundations of the new classicism, including the rational-expectations hypothesis.

But Blinder does not believe that academic economists are solely to blame for the break between theoreticians and practitioners. The consumers of economic advice – politicians and decision makers – must also shoulder some of the responsibility. In the eyes of politicians and the public alike, the inability to predict the unpredictable (such as the formation of a common front within OPEC) was erroneously perceived as a failure of economic science. Keynesian policies were unjustly blamed for the development of an economic climate where inflation and recession co-existed; yet this situation was the result of adverse supply shocks. A final factor was an excessive attachment to snappy but misleading slogans and political remedies for economic problems.

Can the happy marriage that once existed between economic theory and the practice of policy be reestablished? The author offers a guardedly positive prognosis. Certain conditions will have to be satisfied. In particular, consensus must be restored within the macroeconomic fraternity. Blinder feels that Keynesianism is currently making a comeback in universities, now that the new classical wave is receding. He points to a number of new developments in economic theory that, although just beginning, will shore up the underpinnings of Keynesian doctrine. There is reason to believe that once this task has been accomplished, Keynesians will return to the rich empirical tradition of earlier decades. If universities indeed rediscover empirical research, Blinder predicts that the healthy working relationship between economic scholars and economic policymakers can be restored, provided that politicians are responsible and forward-looking enough to make better use of economic science than they have in the recent past.

In his commentary, Rod Dobell begins by developing Blinder's analysis in the form of his own capsule history of macroeconomic science. His arguments support Blinder's contention that the choice of a macroeconomic model for economic policy purposes probably reflects more a predisposition for or against discretionary government policy than the model's empirical or theoretical merits.

While he agrees with much of Blinder's analysis, Dobell finds his assessment of the future role of economics in public policy development and decision making somewhat too optimistic. He casts doubt on the ability of economics to solve the dilemmas posed by the major issues addressed in previous sections – i.e., the evolution of the ecosphere, international economic cooperation, the problems associated with human-resource development and industrial relations, the value of the social contract, and the need for new decision-making processes and institutions.

In support of his views, Dobell cites the Brundtland Commission report and the report of the Council of Resource and Environment Ministers in Canada. Both of these documents express strong doubts as to the ability of economic analysis in its present form to solve the problems of sustainable development.

Dobell stresses that, because markets are myopic, so too are economic theories that rely on market-based solutions. He points out that the analytical tools used to assess projects do not take into account their environmental impact and accord little importance to the welfare of future generations. In short, the analytical framework of economic science is not well-suited to a long-term perspective.

To the question "Is economics up to the task?," then, Dobell replies with a firm "no." And he goes further, suggesting that the human sciences in general are not up to the task. What will be needed to deal with the major problems of the third millennium is a truly interdisciplinary effort that will include the natural sciences. Economists will also have to become more modest, and better ways will have to be found to measure and account for human resources, ecological resources, knowledge, and access to information. Along with individual decisions based on market mechanisms, there will be a need for greater recognition and acceptance of collective decisions based on tradition, on rights, and on simple community considerations. Dobell adds that we will need to develop institutions that use market forces as an aid to social action, instead of as a substitute for social responsibility.

A degree of consensus emerges from the papers and comments presented in this final section. There is no doubt that Canada's ability to adapt to change will be sorely tested in the coming years by several major issues. The decision-making process will inevitably grow more complex as global forces – foreign competition, environmental constraints, and demographic pressures – continue to intensify. The reader may gain the impression from the following pages that Canada's environmental and institutional structures do not have what it takes to successfully meet the challenges of the 21st century. First of all, consensus in the social and political spheres, which provides the social cohesion needed to achieve major change, has deteriorated significantly. Canada will also have to make profound changes to its governing institutions and other aspects of its decision-making process if it is to have any hope of rebuilding the social, political and scientific consensus needed to implement policies to revive and sustain the economy. One of these changes is the quest to make the general public more aware of global pressures and the impact these pressures have on their day-to-day lives. This step is essential if national leaders are to effect the necessary changes without encountering constant opposition from their constituents. Canada must also become more open to the outside world and must attempt to end (or at least tone down) its interregional battles. Another welcome development in this process would be speedy agreement among Canadians on new constitutional arrangements with a better chance of meeting the aspirations of the population as a whole.

Conference Discussion

The discussion that followed the presentation of these papers was lively and varied. Several participants perceived a rather pessimistic tone in the papers on the subject of Canada's ability to meet the challenges of the year 2000 – and did not agree with it. They did not share the general lack of confidence expressed and suggested that Canada's strong points deserved to be emphasized more.

The concept of education and immigration as collective goods prompted several comments. It was suggested that education is fast becoming a national objective and priority, and that better lines of communication between governments at both the federal and provincial levels and with the private sector are needed to avoid expenditure overlaps in this area. One participant noted judiciously that the topic of immigration had received a great deal of attention throughout the conference despite its absence on the agenda. He hoped that discussion of this issue would eventually rise above short-term policies to address the long-term implications.

It was noted that the financing required for Ian Stewart's list of collective goods might reach as much as $30 billion a year. Even if part of the money came from the private sector, this would still represent a difficult problem. The enormous pressures involved in producing these goods would be aggravated by the problem of how to finance them.

On the subject of consensus, it was noted that the consensus that existed several decades ago was one developed behind closed doors by a small group of Anglo-Saxons. Canada's population today – educated, diverse, multicultural, and, quite simply, larger – makes such a consensus much more difficult to attain. Canadians will only rally behind creative and innovative projects when efforts are made to assuage their fears and to trust and invest in their abilities.

Citing increasing capital flows, the internationalization of financial markets, and the strong influence of these trends on domestic policy, one participant suggested that we are perhaps faced with a change in paradigm that will eventually lead to the decline of the nation-state in the 21st century. We should thus be asking what economic theories will be needed to govern not a nation-state but a planetary economy.

Responding to Alan Blinder's paper, a prominent industrialist and a well-known economist intervened by proxy to state that there are still academic economists whose advice is listened to and respected by political authorities. According to them, it happens that these economists are supply-siders, for whom Keynesians simply have no great use. Hoping to gain a monopoly on the right to supply political advice, the two argue, Keynesians are attempting to wrest control of the process of combining the best ideas of the various schools of economic thought that have appeared in the last several decades. Yet, they pointed out that supply-side economists believe that their school of thought is itself a product of such a synthesis.

One participant suggested that, rather than asking if economics is up to the task, we should be asking whether we understand the moral foundations of economic science and whether they are still relevant, given the fact that they have not changed since the 18th century. Blinder replied that the moral foundation of economic science is individualism and that the role of the economic system is essentially to supply goods and services that satisfy individuals' preferences.

10 Consensus and Economic Performance

Ian A. Stewart

> If you fail, rational change will be gravely prejudiced throughout the world, leaving orthodoxy and revolution to fight it out.[1]

> The political economy [of 20th century industrial nations] developed a combination of conflicting characteristics:
>
> 1) Its economic drive was essentially market capitalism.
> 2) Its political legitimation was universal participation.
> 3) Its economic constraint was the income distribution of pyramid shape, later moulding into the form of a base-weighted diamond, in which the heights of consumption and civilized living are available only to a few.
>
> Any two of these characteristics are compatible: the three together were not. The twentieth century has been a swaying struggle – in the market-place, in the political arena, and among the wordsmiths and occasional fighting men locked in battle for hearts and minds – over which would be the incompatible element that would have to make way [Hirsch, 1976].

> In a time such as ours, when inherited myth systems are in disrepair and no great political leader has as yet emerged, historians, political scientists and other academics who are paid to educate the young and think about matters of public importance ought to feel a special responsibility for proposing alternatives to accepted ideas. Only so can they hope to trigger a successful reorganization of public myths that could command the support of informed or critical minds. To leave the field to ignorant and agitated extremists is dangerous.
>
> Myth lies at the basis of human society. That is because myths are general statements about the world and its parts, and in particular about nations and other in groups, that are believed to be true and then acted upon whenever circumstances suggest or require common response. This is mankind's substitute for instinct. It is the unique and characteristic way of acting together. A people without a full quiver of relevant agreed upon statements, accepted in advance through education or less formalized acculturation, soon finds itself in deep trouble, for, in the absence of believable myths, coherent public action becomes very difficult to improvise and sustain [McNeill, 1982].

> We are the first generation to have lived under the shared threat of ecological and nuclear catastrophe. . . . Yet – and this is the truth before which thinking about politics has stalled – the more evident our common needs as a species become, the more brutal becomes the human insistence on the claims of difference. The centripetal forces of need, labour and science which are pulling us together as a species are counter-balanced by centrifugal forces, the claims of tribe, race, class, section, region and nation, pulling us apart [Ignatieff, 1986].

> How is it that the Macdonald Royal Commission, specifically created to lay the groundwork for a new social consensus on economic policy, has come up with solutions crudely biased in favour of corporate Canada? [Drache, 1986]

> Nevertheless, the challenges to governability remain. They are likely to focus on the nexus between the need for Canada effectively to manage its international relationships and the management of a highly plural society. One force pulls in the direction of coordination, centralization, harmonization; the other in the direction of diversity, decentralization, difference. Closely related is the tension between the societal thrust towards greater participation, towards a defence of the welfare state and the preservation of poorer regions and towards the extension of new values into public affairs on the one hand, and the thrust towards economic efficiency and economic growth on the other. Postwar social democracy provided a reconciliation of such tensions effective for its own time; the need is for another such integrative blueprint, or public philosophy, suited to contemporary circumstances [Simeon, 1987].

The quotations chosen to preface this essay chart its intended course. Keynesian rationalism, which seemed for almost three decades to reconcile Hirsch's conflict, weakened under the turbulent economic forces and intellectual and ideological counterattacks of the 1970s and 1980s. The deep structural disrepair, and the competitive pressures unleashed by the forces of globalization in the 1980s, have seemed to compel a reversion to an older orthodoxy emphasizing the efficiencies of markets and questioning the interventions of governments. Belief in the institutions of government and governance, and indeed in public purposes more generally, has seemed to weaken as economic insecurities reinforced the private pursuit of jobs, income, and wealth. Rather than diminishing, as Keynes foresaw, the "economic problem" seems evermore dominantly the "permanent problem of the human race" [Keynes, 1930]. And yet, before the challenges it must face, it is difficult to believe that the new orthodoxy has underpinned it the mythic belief structures that McNeill would urge or a resolution to Ignatieff's dilemma. Its central consensual demand is allegiance to the forces of science, technology, the marketplace, and market outcomes. In its sterner forms it asks acceptance of distributional consequences and minimizes the importance both of market failure and the collective provision of goods, services, and amenity. But these remain critical issues, as Drache suggests, whose failure of consensual resolution will increase social rigidities and hobble economic performance [Olson, 1983].

The call for a "social blueprint," a new public philosophy, implicit in all the quotations but which Simeon makes explicit, regrettably is beyond the reach of this essay and its author. After a brisk canvas of the Keynesian era and the forces which have brought us to our present estate, the essay does seek to canvas the issues on which consensus, or its lack, may prove most critical. Most of these issues weigh orthodoxy against renewed reform in a social democratic tradition. The essay concludes, however, by asking whether looming ecological crises will, by the year 2000, have posed both consensus and economic performance the most daunting challenge of all.

The Keynesian Era – The Golden Age of Consensus

Out of the depths of the Great Depression, J. M. Keynes' offer to President Roosevelt of rational change, in opposition to orthodoxy or revolution, gave birth to the "Keynesian era."

> It was Keynesianism that provided the ideological and political foundations for the compromise of capitalist democracy. Keynesianism held out the prospect that the state could reconcile the private ownership of the means of production with democratic management of the economy.... Democratic control over the level of unemployment and the distribution of income became the terms of the compromise which made democratic capitalism possible [Przeworski and Wallerstein, 1982, p. 54].

What has come to be called Keynesianism reached far beyond the narrower bounds of Keynes' contribution to macroeconomic management theory. The theory only provided the underlying rationalization for government intervention. It joined with two streams of "welfare" economics, that concerned with evaluating the efficiency virtues *and* failures of the neoclassical model and that concerned with distributional issues, to evoke a broad synthesis of support for state intervention. This synthesis, what has come to be called Keynesianism, could be said to be the fullest flowering of the English tradition of political economy, concerned centrally with the problem of social welfare [Parker, 1986].[2] It found reflection in the standard works of public finance and the theory of the public household with its four-part responsibility for equity, efficiency, stability, and growth [Musgrave, 1984].

Under its aegis, and with a substantial boost from the economic revival stimulated by World War II, Western industrial states, in a series of national "white" papers, committed themselves to act under its principles. Over the next two and one-half decades, with historically unprecedented rates of economic growth and expanding "fiscal dividends," the structures of the welfare state were put in place. Their composition varied among industrial states and the degree to which they were put in place – and hence the proportion of economic activity passing through the hands of governments – varied quite strikingly among countries. These differences will play some part in the subsequent argument; but it is also striking that the competitive disabilities that might arise from such differences did not seem to be, through the period, a matter of prime concern. Indeed, one might argue it was the strong consensual underpinning of Keynesianism together with flourishing growth that permitted the welfare state to rise, at least among industrial countries, everywhere and, figuratively, at once without seeming to trigger dramatic internal or external competitive concerns.

The consensus carried over and informed the creation of the international institutions flowing from the Bretton Woods conference – the International Monetary Fund to facilitate international monetary and exchange rate stability, the GATT to pursue the trade liberalization which the new confidence in stability permitted, and the World Bank to be concerned with the longer-term channelling of investment funds to the underdeveloped world.

Growing confidence in the ability to sustain macroeconomic stability permitted attention to turn not only to issues of distributive justice but to questions of resource allocation (though not always with efficiency as the driving concern). In Canada, the Economic Council of Canada was created as a national consensual institution intended to bring together and reconcile the views of a research economist staff with a Council broadly reflective of interest group structures. The intention was to provide governments and the public at large with advice that explicitly dealt in the medium- to longer-term issues of allocation and growth. The regional nature of the Canadian federation, and a similar optimism that the possible efficiency costs of more equitable development could now easily be borne, later led to the recognition of regional economic development as a formal responsibility of a ministry and department of the federal government. At about the same time, a similar spirit infused the research staff and the commissioners of the Royal Commission on

Taxation who enshrined equity as their guiding principle of tax reform.

> Unless the allocation of the burden is fair, the social and political fabric of a country is weakened and can be destroyed. . . . Should the burden be thought to be shared inequitably, taxpayers will seek means to evade their taxes. . . . When honesty is dismissed as stupidity, self-assessment by taxpayers would be impossible and the cost of enforcement high [Royal Commission on Taxation, 1967].

It might finally be noted that the consensus was reflected both in the curricula of schools of economics and in the absence of broad doctrinal dispute among economists. Keynesianism flourished and the dissenting voices were muted and few. And few doubted that the sustained expansion of the postwar decades, particularly after the economic collapse of the 1930s, owed much to Keynesian rationalism.

Deteriorating Economic Performance and the Dissolution of Consensus

While the prescriptive consequences of the strains which contributed to the erosion of the Keynesian consensus remain very much in dispute, there is little disagreement on the list or on the inseparable interactions of the forces which compose it. Inflation, growing structural disorders and imbalances, the competitive emergence of Japan and the newly industrializing countries eroding industrial country dominance, international price shocks particularly in food and oil, fundamental technological change, and a loss of discipline in domestic and international economic management, all have a place in any comprehensive assessment. Any of these forces alone, but particularly domestic and international inflation, would have severely tested the Keynesian compromise. Together their effect was to sponsor a broad-based challenge and reassessment. Monetarist, neo-Keynesian and neoclassical revolutions within the economics profession not only eroded Keynesian dominance but diminished consensual advice to policymakers. Perhaps as important as the questioning of macroeconomic prescription was the reemergence of a neoclassical emphasis on efficiency, partly in recognition of the Keynesian neglect of issues of supply, partly reflecting the apparent productivity collapse of the early 1970s, and partly reflecting the new science and technology-driven competitive environment. With this went a deep questioning of the inefficiencies of the programs of the welfare state and of interventionist government more generally.

This economic questioning had its counterpart in political thought. From both right and left, political observers examined the emerging strains of the Keynesian era in discussions of political versus economic rights [Okun, 1975][3] and opportunity versus entitlement; from a Marxian perspective, the contradictions of the welfare state [Offe, 1984]; from the right, the emergence of public-choice theorizing questioning the very capacity of self-seeking governments to serve collective purposes. Nor was the dissolution of the Keynesian consensus confined to intellectual elites. A broad reaction infected publics at large, reflecting together disappointed economic expectations, disquiet with intrusive government, and a weakening commitment to public purpose. Through this economic and intellectual turbulence, not only has economic policy and performance lacked strong consensual foundations, but institutions like the Economic Council, created to nurture and sustain consensual directions, not surprisingly have lost influence.

The continuing aftershocks of these disruptions intersected with a worldwide recession brought on by the imposition of dramatic monetary restraint in response to the second oil shock and its inflationary aftermath. Despite almost five years of renewed growth, the world continues to confront: large international trade and payments imbalances; fear of the reemergence of inflation and consequently historically high real interest rates; the overhang of Third World debt with its threat both to the international financial system and the prospects of economic recovery in much of the Third World; uncomfortable unemployment levels particularly in Europe; and, apart from Asias NICs, an apparent halt to the agonizingly slow convergence of real incomes between the underdeveloped and developed world. For many in the industrial world, deep governmental fiscal imbalances and continuously rising public-debt levels confront the demands of social transfer programs, the revelation of dramatic holes in safety nets, particularly among women, the expanding claims of health and education, and infrastructure demands more generally. These, together with the competitive force of "globalization" rooted in technology, the increasing mobility of real and financial capital, and international wage differences, seem almost to compel a commitment to a new era of economic and political liberalism with its language of individualism, privatization, deregulation, the efficacy of markets, the inefficiency and motivational costs of the welfare state, and the virtues, if not the necessity, of less government generally. It is a language and a view that seek, as its consensual basis, subscription to the rules of the competitive marketplace, the diminishment of claims upon the state, and a recognition of the potential destructiveness of the use of political power, either within or among states, to apportion economic rights and entitlements. It is a language of individual freedom and responsibility. Despite the rhetoric, however, the apparent intractability of reform suggests the absence of strong consensual agreement, the lack of mythic force in McNeill's terms; its lack appears to promise a decade to the year 2000 and beyond in which "coherent public action is difficult to improvise and sustain."

What has been sketched, in too brief compass and with inevitable oversimplification, are the elements which composed and the forces which dissolved the Keynesian consensus worldwide. Before moving to a selection of the issues upon which a lack of consensus may prove particularly troublesome for the quality of economic performance, it will be necessary to ground the discussion in its Canadian context.

The Canadian Context

Despite popular misconceptions to the contrary, perhaps as a result of measuring itself against its southern neighbour, Canada did not lead in the creation of, nor ever achieved the status of, an advanced welfare state. Measured by the proportion of economic activity passing through the hands of government, Canada remained throughout the Keynesian period in the bottom half of the OECD league tables. In three notable areas, however, Canada may be said to have had world-class status: the volume of public resources devoted to education broadly defined (partly reflecting the dimensions of the baby boom in Canada); the elaboration of regional transfer and economic incentive programs; and, at least partly reflecting regional sensitivity and seasonal economic activity, the evolution of an elaborate and costly system of unemployment insurance. The attention to matters of regional equity and development reflected both a genuine concern for the distribution of well-being and the growing political and economic power of the provinces in a decentralizing federation.

For a number of reasons, including increasing tensions within the federation, the turbulence of the 1970s and 1980s proved particularly difficult for Canada. Through abrasive labour-management relations, vulnerability to resource price rises, and expansive public policy, Canada suffered a more severe inflationary bias than many other industrial countries, particularly those with more elaborate consensual institutions and processes. This both compounded the difficulties of macroeconomic management through stagflation and recession and, through two bouts with incomes policies, estranged labour-government relations further. The consequent withdrawal of organized labour from participation in consensus seeking emanations of government, like the Economic Council, diminished their effectiveness.

The incapacity of the federal government and the provinces to arrive at a principle of revenue-sharing through the two oil price shocks embittered federal-provincial relations. The collapse of oil prices and of resource prices generally through the early 1980s recession deepened its impact on Canadian incomes and employment. It also became clear through the period, with increasing competition from new supplies and suppliers, that Canada's position as a rentier nation, a leading resource supplier to the world, was no longer so secure. The traditional shortfall in Canadian manufacturing productivity, particularly vis-à-vis the United States, the relative decline of traditional industries and the growth in importance of science and technology-based manufacturing, and the recognition of Canada's lag both in R&D spending and in the diffusion of new technologies, sponsored fears of de-industrialization.

And finally, as in most other industrial countries but again with somewhat more dramatic effect in Canada, Keynesian ministrations to the stagflationary period combined with the high elasticity of statutory support programs through the recession to bequeath a deeply entrenched federal deficit. Five years of continuous, if not robust, recovery and some increase in average tax burdens have failed to make substantial inroads on its scale as debt/GNP ratios continue to rise. Efforts to contain the rate of rise of expenditures meet formidable political obstacles from interest groups, while efforts at tax reform meet a similar reluctance to see tax expenditures foregone.

All of this experience has unleashed enormous and literate attention to the crisis of the modern state and of governance. There is a rich Canadian literature surveying the peculiar strains of the Canadian polity and economy. Much of it is surveyed and synthesized in Simeon's [1987] examination of issues of governance. Almost all of it may be said to bear in some way on the consensual enigmas which pervade the Canadian scene and which threaten, if unresolved, the quality of both economic policymaking and performance. A good deal of it reaches into issues that are dealt with only glancingly in this essay. The acknowledgment of increased international economic and political interdependence signals both a reduced capacity to manage economic events and yet the need to adopt wise national policies to shape a strategic response to international competitive forces. Canada's position as a small, open economy in a North-American setting and the tension between continentalist and multilateral strategies sustains a deeply discordant political and economic debate. The politicization and fragmentation of society, itself, in part, a product of big government and welfare state policies, confounds efforts to reform economic, social, and industrial policies. The regional nature of the Canadian economy, federal-provincial tensions within the federation, and the changing fortunes of regions under worldwide economic and technological forces prevent a systematic resolution to the centralist-decentralist debate and the thinking-through of national strategies. Canada's history and its good fortune as a resource-based exporter to the world with a derivative and branch-plant-oriented manufacturing sector confronts a new reality in which the importance of resources may diminish and the vibrancy of the manufacturing sector is questioned. The inability to reach conclusions on which way fortune lies sustains a cyclical fashion in industrial policymaking – from publicly supported mega-projects to market reinforcing policies and back again. And with these economic dilemmas and tensions runs an equally lengthy list surrounding political forces and institutions.

The reader will be ready to say enough, enough! With this dreary background, it is time to speculate on how the international imperative of economic liberalism with its human, political, and economic virtues may be nurtured rather than undermined by attending to the efficient provision of public goods. Rather than diminishing in importance, determined attention to the nurturing of a collective consensus well beyond the rules of the market game may not only be critical to economic performance but to avert pressures for ever-greater recourse to law and intervention more generally.

Towards a New Public Philosophy

The title of this section is wildly presumptuous. What follows, however, is built on a set of notions (one hesitates to call them principles) that would seem essential components of any new public philosophy or social blueprint. It owes much to the work of Hirsch [1976], whose *The Social Limits to Growth* remains, unfortunately, insufficiently well known. Hirsch's attempt to reconcile the destructive consequences of income and wealth disparities for the performance of market capitalism, and the prevalence of public goods, with solutions that minimize obtrusive government intervention, informs much of what follows. Olson's thesis [1983], that those nations which sustain national consensus and resist the fragmentation of interest groups, rise and resist decline, also has a place. Boulding's [1981] many writings on the grants economy and the conditions that sustain a view of taxes as grants rather than tribute are relevant. Hirschman's [1982] conviction in *Shifting Involvements* that societies move cyclically from private to public purpose sustains faith that public reform agendas, rather than mere disenchantment with government, may again engage committed public attention.

What follows recognizes that a reversion to Keynesianism, in the broadest sense, is neither in the cards nor a preferred alternative. Indeed, meeting the challenge of the growth of government and restoring its effectiveness, manageability, and accountability, must be central to any consensual prescription. This seems no longer seriously in dispute from left or right. The breadth of responsibilities assumed by government and the consequent explosion of law and regulation, as much as the rise in taxation and expenditure, have alerted all to the political, as well as economic, costs of excessive dependency on the state. Were this not enough, the current fiscal imbalance of the federal government combines with the global competitive challenge to compel a more frugal route to the restoration of balance.

What follows recognizes as well, however, that a search for consensus in what have become known as Reaganism/Thatcherism directions seems equally not in the cards. There seems to be a sturdy unwillingness in Canada to accept the sterner tenets of orthodoxy. Rather, the search must be for a reformed government agenda that responds to the regional nature of the federation and the apparent determination of Canadians to maintain an elaborate safety-net structure. In the words of Helliwell [1988*b*], the task is at least partly to transform those safety-nets into trampolines, to reduce the cost, dependency creation, and entrapment of what we now do. But the task is larger than that. Underlying the shift to orthodoxy have been, as noted earlier, two intellectual currents, the reversion to neoclassicism in economics, with its tendency to diminish the importance of public goods, and a reversion to a political liberalism that casts doubt on the capacity of self-interested political institutions to serve public purposes. It is the burden of this essay to suggest that collective goods and the skillful design of their provision, far from diminishing in importance, may become more critical as essential consensual foundations to the well-functioning of the market economy and economic performance generally. The task is to discern what ought and what ought not to be considered appropriate for collective provision. It is to find, further, the means of provision most likely to sustain broad public understanding and support (which, as will be suggested, need not necessarily demand the intermediation of government); and, by similar understandings, to constrain government actions in arenas where private initiative, diversity, and entrepreneurship may flourish.

The definition of collective goods employed is admittedly wide, much wider than that normally found in economics textbooks. The definition of a pure public good refers to the special case of a good whose consumption by one person does not diminish the quantity available to others. The provider of such a good is unable to appropriate all the rewards for its provision since, once it exists, all are free to enjoy it. If the good is generally desired, it follows that private markets will supply it in insufficient quantities. It is this logic that provides the case for state provision, financed out of general tax revenues. Economists refer to this case as one of extreme positive externalities. There are few examples of pure collective goods – national defence, clean air, and clean water are the most suggestive and frequently cited. But there are untold numbers of goods and services that may be said to have some combination of public and private good (or bad) properties, to have some externalities associated with them. Nor need they be directly tied to the good or service in question. The availability of clean air provides a stream of benefits in health, vigour, well-being generally that may be thought of as positive externalities associated with its provision. Externalities may be both positive and negative. Where positive, they invite government intervention to increase the supply of the good or service in question. Where negative, they invite intervention to limit the supply – by law, by regulation, or by tax and other instruments of economic disincentive. In acting to increase supply where positive externalities are believed to be present, governments may take over the provision totally, jointly supply with the private sector, or simply provide positive incentives to the private sector. Education, housing, and medical services are traditional examples where monopoly provision or some form of joint provision has usually prevailed. In acting to diminish supply of a bad, the use of law and regulation by governments have frequently had the effect of setting limits to the permissible, rather than engaging responsible public behaviour. "All law diminishes responsibility" in the view of a legal sage.

Thinking about collective goods and bads poses many intellectual and political puzzles. Many of them have been analysed in terms of prisoners' dilemmas, free riders, and the difficulty of transmitting and acting upon collective signals. There is a note, in a certain unwilling return on the part of many to liberal orthodoxy, that these puzzles defy solution – that running modern economies at less than full utilization and accepting socially undesirable distributions of income, wealth, and amenity are necessary prices to pay and an essential discipline for the beneficence of market economies. In reply to Drache [1986] and his concern for the outcome of the Macdonald Commission, Simeon (in an unpublished paper) argues that, despite the presumed commitment of commissioners appointed by a Liberal government, given the challenges they faced, no comprehensive alternative was available to the commissioners which could confront the power of the orthodox model. An essential argument of this essay, however, is that the very technological revolution that underlies the forces of globalization, the information revolution, and its associated technologies provides a glimmer of hope that better public and private understanding of collective goods issues may be within reach. Further, it will be argued, it may be possible to discern those areas in which government intermediation on behalf of the collectivity seems essential, and those areas in which it may be possible to build sanctions against irresponsible private behaviour without the intervention of law and authority. In this way a bridge may be built between the demands of a more competitive order and the vibrancy and exhilaration of private economic pursuits, on the one hand, and the existence of consensual collective structures that support rather than erode economic incentive, on the other.

It is to the application of these thoughts to a very selective set of topics that the essay now turns.

Some Collective Goods with Strong Links to Economic Performance

The Distribution of Income and Wealth

There is undoubtedly battle fatigue with the equity versus efficiency debate. Indeed, even among hardened campaigners for greater equity there appears to have been some sense of relief that economic exigency has, at least for a time, deflected attention to issues of economic repair. But it is possible to order an impressive array of argument that economic performance over the coming decade will be evermore tightly associated with effective policy addressed to distributional and redistributional issues and the sustaining of a national consensus in these matters.

The fundamental argument begins from the work of Hirsch. Its essence is captured in the quotation that begins this essay, but the richness of its development can only be briefly summarized here. It is built around the notion that economic hierarchy, and hierarchies in income and wealth, breed competition for goods and services that are absolutely limited in supply, raising their price, and hence demanding ever-greater income and wealth to secure access to them. This process in turn breeds competition for place within the hierarchy through differential access to such things as education that, since hierarchical places are limited, only imposes dead-weight losses upon the society as a whole. Higher education becomes merely a screening device. This process inspires collective response and collective demands upon government and in economic bargaining generally from those who see themselves relatively disadvantaged. For Hirsch, here lies the seat of the inflationary disposition of the modern industrial economy and much of the overload on governments seeking to respond to interest groups urging distributional or redistributional redress. For Olson, it is the rigidification brought on by this breakdown of national consensus that ultimately destroys economic resiliency. So long as the system delivers high employment and steadily rising real incomes, as through much of the Keynesian period, the struggle is muted. When this capacity flags or is constrained, the struggle becomes more intense.

Hirsch's emphasis on the importance of relative incomes has become an essential tenet of modern neo-Keynesianism, the recognition that relative rather than absolute incomes play a critical role in the restless pursuit of money-income gains, and hence feed the inflationary process. The response of macroeconomic policy, particularly monetary policy, has been to seek to maintain a margin of ease in the utilization of resources, particularly labour resources, to ensure that the power to resume this restless pursuit of income shares is not re-excited. Historical evidence suggests that major periods of economic adjustment, particularly those which demand sizable reallocations of resources, are most easily accommodated when economic activity is high and rising. The caution of monetary authorities, in this sense, stands in the way of rapid adjustment and response to more competitive international forces and may be seen as a less satisfactory alternative to a more explicit public reckoning with distributional questions.

The redistributional quandaries confronting the federal and provincial governments make even clearer the collective good character of these issues. From all sides the critical need to reform the Canadian systems of tax and transfer is acknowledged. Not only is the total weight of the system and the distribution of its benefits insupportable given the state of fiscal distress, but the implicit tax-back rates in programs such as the Canada Assistance Plan and the Unemployment Insurance create precisely the untrampoline-like qualities of dependency and entrapment that hinder recovery and adjustment. If one adds to the present system impending demands for new streams of benefit – child care, aged care, the financing of training and retraining, and the provision of low-income housing, not to mention demands outside the social policy system – and adds the growing reluctance of taxpayers to finance the burden of a mistrusted and complex system, reform becomes an absolute imperative. Attempts at incremental reform, program by program, meet galvanized political resistance. It is not difficult to conclude that only radical reform – reform that lays bare the structure of who pays and who benefits and that seeks broad community consensus on the equitable character of the proposed result – has any chance of stilling the potentially destructive threat to fiscal integrity without compounding internal political and economic dissent. It is precisely by viewing the system as a whole, as well as its tax and transfer components, as a collective good, that reform may be enabled.

It is the existence of the technological revolution in information processing that makes it further possible to contemplate such broad-based reform. On the one hand, it permits the ready portrayal, in spreadsheet form, not only of losers and winners but of the distributional properties of the system, a technique that has facilitated recent tax reform efforts in both Canada and the United States. It is the computer, further, that permits the contemplation of guaranteed annual income designs, or other tax-transfer integration proposals, that would have the appropriate properties of comprehensive coverage, impersonal income-testing, appropriate tax-back rates, and timely delivery of benefits [Wolfson, 1987].

The urgent necessity to reform income distributional and redistributional arrangements in the coming decade is nowhere so clearly demonstrated as in the debate over the Canada-U.S. Free-Trade Agreement. It is difficult to believe that the agreement would have met such sturdy and emotional resistance had it been built upon a firmer and consensually agreed set of social policy understandings. For the dissenters, it appears to add the pressures of both economic integration and a prolonged period of subsidy negotiation to the uncertainties surrounding the stability of existing programs. It is argued that it will introduce another set of forces, both within and without the country, tending to erode rather than buttress social arrangements. To its well-meaning proponents, it is the existence of free trade that will ultimately permit these arrangements to be sustained. But on what terms, and by what means, the gainers from the agreement will share those gains with the losers or facilitate their adjustment is the subject of little specific address.

Nor, from a concern for equity and economic performance or from the revenue requirements of governments, can the taxation of wealth be much longer neglected. Canada ranks close to the bottom of OECD countries in its taxation of wealth while its distribution remains much more skewed than income. It is as much the maldistribution of wealth as income that sets in train a competition for place and amenity, displaces those unable to maintain the pace, and excites, particularly in urban agglomerations like Toronto, a growing sense that the system cannot meet the demands that seem to be put upon it.

Education

Globalization, technological change, and the international competitive imperative have brought increasing strains to the Canadian educational system. From primary to postsecondary institutions, the capacity of the system to offer education, training, and retraining, and to respond to the changing skill demands of a technological age have been called into question. The relative scarcity of well-paying jobs, and the increasing credentials demanded by employers, have caused students to put increasing demands on professional schools beyond a first university or college degree. Within the universities, the relative importance of the education versus the training function is continuously in debate under public, industrial, and governmental pressure to serve economic purpose. In all provinces, postsecondary institutions have found themselves under severe financial restraint in responding to expanding full- and part-time student enrolments and the demands for mission-oriented research. At the high school level, curricula have come under criticism as literate, mathematical, and scientific skills have been seen increasingly as the requirements of a technically sophisticated work force. Nor have the criticisms been limited to internal debate. External bodies, including the OECD, have been critical of the quality of the Canadian educational system.

Education in Canada has largely been looked upon as a public good. The presumed positive externalities associated with a skilled and educated labour force have sponsored an almost exclusively public system financed by general revenues at the municipal, provincial, and federal levels. The claims of equal opportunity have further supported a widely accessible public system. The time has probably come for a wide-ranging examination of the quality of this system, the reinvigoration of support for it, and its reinforcement with public funds. Very few doubt that education will be critically associated with a country's economic fortunes. And the demands of rapid technological change and rapidly shifting industrial structures would seem to promise the need for continuous retraining and facilities for lifelong learning.

A failure to confront these issues and nurture, through qualitative improvements, continuing support for a public system, will invite its erosion. The pressures of economic events show signs of driving those who can afford it to private institutions. To the already worrying concern over the two-tiered labour force effects of an advanced service economy, any substantial expansion in the availability of private schooling would undoubtedly threaten the public system as the better-teaching resources found the private system more attractive and as ratepayer resistance to public-school financing grew. The threat would be the erosion of the public system, with a consequent invasion of class distinctions not hitherto particularly troublesome for Canadian society. Some private schooling may be supported in the interests of diversity and vitality in experimental teaching, but as with medicare and extra billing, its too great expansion would threaten the survival of the public system.

Housing

Housing is an example of a service with public good aspects whose provision has been jointly privately and publicly supported. Because of a peculiar nexus of forces through the turmoil of the 1970s and 1980s, housing markets have come under severe strain. In major urban centres, rising demand, rising material and land prices, and inadequate inducements to supply (compounded by bad public policy – particularly for rental housing) have carried shelter prices, and the absolute availability of shelter, beyond the reach of significant numbers of Canadians. Close to one million Canadians pay more than 30 per cent of their incomes on shelter costs. This is an issue involving sharply rising social costs, with the capacity to impede mobility and security and hence economic performance.

Current public programs, particularly support for co-op and non-profit housing, are extraordinarily costly and erode the backlog of too great shelter costs at a rate that is less than 5 per cent per year. The maintenance of rent controls in several provinces continues to constrain the private contribution to rental supply. Once again, as with education, the existence of large income differentials compounds the problem, threatening to erode consensual purposes and collective economic performance. In the restricted menu of government obligation to provide collective goods which this essay is seeking to describe, shelter ought to make increasing demands on the public purse through the 1990s.

Infrastructure

This is partly to note, for the sake of completeness, that infrastructure demands at all levels of government, for expansion and renewal of roads, sewers, water treatment facilities, parks, transportation facilities, and public facilities generally, can be expected to sustain incessant demand. Indeed, under the rising apprehension with respect to environmental degradation, demands may be expected to rise sharply. It need hardly be said that room must be found within government budgets and that support for the financing of these critical public goods in a functioning modern economy must be the subject of active consensual cultivation.

Beyond environmental demands (which will be examined in the next section) perhaps two important new demands will, or ought to, confront governments. The first is the need to ensure, jointly with the private sector (or its regulated component), that Canada and Canadians remain at the forefront of the communications revolution. One aspect of globalization is the shrinking of physical distance through the existence of worldwide, instantaneous, communication networks. There may repose, in the provision of similar facilities to Canadians, a greater opportunity to deal with Canada's regionality than in any invention of regional development incentive. Similarly, the public dissemination and diffusion of invention, innovation, technology and technique, a serious Canadian deficiency which has concerned the Economic Council, may be thought of as an increasingly important public good claiming the resource of governments and providing an essential public use of communications networks.

Immigration Policy

Finally, a very few words on a topic that does not fall under the category of public good theorizing but that has a very substantial capacity to provoke consensual disarray. Canadian fertility rates are currently in the order of 1.7 children per woman of childbearing age having, temporarily at least, arrested a continuous fall over two decades. In Quebec the rate is 1.3. These rates are both well below the ultimately stable population number of 2.1. Both imply, at current immigration rates, a declining Canadian population within the first two decades of the 21st century. With the claims of economic refugees around the world, and the economic disincentive built into such a decline, it seems very unlikely that it can be permitted to occur. To counteract that threat, however, will require sharply higher rates of immigration beginning around the turn of the century. So long as the Canadian economy is flourishing and unemployment rates are low, the strains of absorption will be minimized. Should economic performance be sluggish, however, a consensual task of some magnitude will confront governments and their counselling institutions if immigration is not to become a troublesome source of internal discord and economic disruption.

Conclusion

This has been a selective canvas of public goods issues with a close relationship to the quality and vigour of economic performance. Together, however (under a broad definition of social programs), they occupy close to 70 per cent of current federal government program expenditures, and over 100 per cent of that figure if one includes tax expenditures and pension plans. The efficiency and effectiveness of their design, and the care with which their public good properties are disseminated and understood, cannot but be critical in shaping both economic performance and its management.

The Challenge of Global Environmental Change

What has been described so far is a speculative set of policies, from a public-goods perspective, attention to equity considerations undoubtedly being the most radical amongst them. They have been proposed with the not immodest aim of finding a middle ground between domestic and international economic imperatives and, hence, the claims of orthodoxy, on the one hand; and a reform of the social order that embraces equity as the complement of efficiency and not its adversary, on the other hand. The suggested reforms might also, it might be hoped, knit up a little the ravelled sleeve of government and reduce somewhat its interventionist proclivities. They are, however, far from the "blueprint" that Richard Simeon might have wished.

Little attention has been paid to issues of consensus in international affairs except to note the legacy of Third World debt and the loss of Third World growth. It has been assumed that many of the earlier papers at the Perspective 2000 Conference will have fully canvassed the territory. If not, The Per Jacobsson Lecture given by Sylvia Ostry last year, with its emphasis on a multipolar world lacking a dominant leading nation, ably covers the ground [Ostry, 1987].

What is not covered in most economic analyses is the prospect of encroaching environmental constraint. Bill Clark will have provided the conference with a view of the dimension of the threat. Economists, triumphant over the Club of Rome and confident of the capacity of relative prices and technological innovation to avert almost any hypothetical disaster, are not yet in the mainstream of environmental concern. But the World Commission on Environment and Development [the Brundtland Commission, 1987], provides a stark contrast. After analysing the major crises – the excessive burning of fossil fuels and the greenhouse effect; fluorocarbons and the disappearing ozone layer; the loss of tropical forests and species; and the reduced carrying capacity of the oceans – the Commission urges a world quite in contrast to the one the earlier parts of this essay attempt to accommodate. Instead of an era of individualism, privatization, deregulation, faith in markets, and the virtues of less government, the Commission speaks a language of law, regulation, public policy, more international collaboration and cooperation generally, and the dramatic necessity of international equity. Through the concept of sustainable development, it urges a world of measured growth, international management, and large transfers of both wealth and pollution rights to the Third World to accelerate their growth and, more rapidly than otherwise, their eventual capacity to forego those rights.

If the Commission is right in its environmental analyses, and reports almost daily tend to confirm rather than assuage those concerns, the challenge to consensual economic policymaking by the year 2000 is vastly larger than the task so far essayed. Appalled by the potential threat of a panicky recourse to law and coercion, and heavy-handed encroachments on freedoms by national and international authorities, thoughtful observers appeal to the cultivation of a zeitgeist which would recognize challenge and economic opportunity in the structural transformations to a non-polluting world, perhaps reinforced by the urgent need to internalize norms of behaviour that would make the oppressive use of coercion less necessary.[4] In Hirsch's terms what may be required is some organizing principle that would permit individuals, firms, and states, to act in the public interest, confident that all others will do likewise. This is a public goods consciousness with a vengeance. It does not require a fundamental change in human character, but almost as forbiddingly mutual commitment to an internalized set of principles – like them or not – that reconcile private acts with private and public welfare. It would be effective recognition of Hirsch's dictum that we now live in a world where "rather than the pursuit of self-interest leading to the social good, pursuit of the social good leads to the satisfaction of self-interest." The gulf between where we have been carried by the reaction to Keynesianism and international competitive pressures, on the one hand, and the possible demands on governments, international institutions, and the thoughtful leadership of public affairs in the year 2000, on the other, seems uncomfortably vast.

Conclusion

Seeking a civilized balance between, and reconciliation of, centripetal and centrifugal forces, to use Michael Ignatieff's phrase, is, perhaps, only another way of defining what is meant by a "social blueprint." Between revolution and reaction, the search must be for a rational course. The great virtues of freedom, diversity, the exercise of private responsibility, and maximizing economic product, underlie the libertarian case. Arguments from collective purposes and collective needs, and other failures of the marketplace, support the role of governments. It is not a revolutionary thought to suggest that the cultivation of a consensus which seeks both to infuse the exercise of private responsibility with its widest possible meaning and to constrain government to its least, the provision of an agreed menu of public goods, offers the best hope of reconciliation and the least constraint on economic performance.

This might smack of piety did not current economic and political circumstances seem virtually to compel such a search. Alan Cairns (cited by Simeon) describes three fundamental challenges, to a degree common to all industrial countries, confronting governments in Canada: how to control their own growth, manage a complex enterprise, and stay responsive, accountable, and representative; how to deal with the politicization and fragmentation of society, itself, in part, a consequence of over-exuberant welfare state policies; and how to manage in a world of increasing international economic and political interdependence [Cairns, 1985]. To these may be added the deep fiscal difficulty in which the federal government finds itself, a concern not allayed by the current election campaign in which all parties promise incremental claims on an already too-stretched purse while disclaiming the taxes necessary to finance them. To these, finally, may be added both increasing international economic and environmental pressures.

"Muddling through" does not seem an adequate response to these issues, or at the least, seems attended with substantial risk. This essay has suggested that greater clarity of thought with respect to the nature of public goods, their design, their financing, and their delivery, and equal rigour in thinking through effective means of private response to quasi-public goods issues, may make a necessary contribution to economic management and governance in the coming decades.

Collective decisions about what ought and ought not to be treated as public goods demand consensus. Indeed, it has been argued that the mechanisms of delivery and finance are themselves systems with public good properties. The cultivation of such a consensus is very close to the purpose for which the Economic Council of Canada was created. Conjunctural difficulties will undoubtedly torment the 1990s. To stand beyond that fray, and perhaps to join hands with the science and social policy communities, in an interdisciplinary search for the next blueprint, remains its greatest challenge.

Commentary by Richard Simeon

I find myself in agreement with most of the thrust of Ian Stewart's paper, and I especially agree with its basic aspiration to find some form of renewed consensus around which one might build a blueprint for the next generation –

one which can serve the same function as did the now tattered Keynesian economic management/welfare state model which governed the evolution of policy in the postwar generation. That earlier blueprint was not only a model for policy – combining the welfare state, macroeconomic management, and freer international trade – it was also in Canada, as in all other Western countries, a political settlement among capital, labour, and government, and between federal and provincial governments. I must confess to disappointment that Stewart has not provided such a new blueprint, but I quite agree that the task is a formidable one.

I agree on many points. I think he analyses the creation and then dissolution of the postwar consensus well. He captures some of the current dilemmas, such as the tension between the need to deal with debts and deficits on the one hand, and, on the other, the need to respond to continuing demands and pressures for expansion of the welfare state – for example in child care. He identifies some important areas of policy change, such as the need to reorient the welfare system to help mitigate the current incentives to dependency. Here and in other places there are important hints that the policy choices are not always between efficiency and equity: there may be more cases than we think where policy change can simultaneously foster both equity and efficiency.

I also agree with Stewart's central thesis, that in any successful long-term rethinking of the role of government in the economy, the role of collective goods and their skillful design will not diminish. No government can allow market forces to operate completely unfettered. Governments in the next generation must simultaneously promote adjustment and restructuring and manage the impacts and costs of change; they must mediate between the domestic society on the one hand and the international environment on the other. They must simultaneously be capable of projecting Canada's interests abroad, and dealing with the domestic impacts of global pressures. This may be a recipe for changed or different public policies; but it is not a recipe for simple laissez faire. And it does require, as Ian suggests, some rethinking of the appropriate division of labour between the market and private spheres on the one hand, and the "public household" on the other.

It is for this reason that I also agree with him that neither a return to the postwar model, nor an unadorned embracing of market forces, what he calls the new orthodoxy, are feasible options in the long run. The old model simply does not take into account the changes which have occurred both within the domestic society – with its proliferation of new groups and issues – and within the global political economy which increasingly constrains domestic decision making.

Nor does the new model, as Ian points out, command the kind of broad support necessary for it to provide a consensual blueprint for the future. The one concentrates too single-mindedly on the need to rectify market failure and neglects the dangers of governmental failure; the other has become too enamoured with the idea of government failure, confusing the abstract virtues of the market with the failures of the real-world market system.

Advocates of the traditional welfare state model sometimes talk as if we could ignore the rest of the world and continue carving our own policies without constraint. But advocates of the laissez-faire model sometimes make the opposite mistake, suggesting that the powerful forces for change in the domestic society can be – or must be – ignored. The fact is that global economic forces tend to pull us in one direction and domestic forces tend to pull us in another. And government must mediate between the two.

Stewart is right to put his emphasis on the need for consensus, for two sets of reasons. The first is a very practical one: the capacity of mobilized social groups, what some have called the popular coalition, to block or veto change. We saw that in the first few months of the Mulroney government, where despite its huge majority, older Canadians were able to mobilize to block modest changes in old age security. More recently, we saw that this mobilization was able to come very close to scuppering the Canada-U.S. Free-Trade Agreement. It may still succeed in vetoing the Meech Lake Accord. Governments must find the basis for securing popular acquiescence if their projects for adjustment are to succeed. As Stewart suggests, while the need for consensus often seems the enemy of better economic performance, in the broader sense consensus is indeed a prerequisite for it.

More generally, everyone agrees that successful adjustment to and exploitation of global and technological change require extensive restructuring and change both in the private economy and in the public sector. Such change is inherently threatening and frightening; it is quite rational to fear and resist it. The broad mass of citizens, and the interest groups which speak for them, will accept such changes only under certain conditions. There must be a sense that change is not simply imposed on them, but that they have some control over the adoption and impact of change; they must have a sense that they are not simply the pawns in the process. There must be a sense that the costs and the benefits of adjustment will be widely and fairly distributed. There must be a reasonable expectation that alternative forms of economic activity are available for those whose existing industries and sectors are in decline. And there must be a sense that there are strong safety nets to catch those displaced by the adjustment process.

Such requirements are not only moral ones; they are also essential if adjustment is to take place voluntarily. The alternative is either that the required changes will not take place; or that it will require a considerable degree of coercion to bring them about. Neither of these is acceptable: hence the importance of building consensus.

Ian thus states the need persuasively. But that raises questions he does not address: What is the capacity and effectiveness of our political institutions for building such consensus? What are the political prerequisites for effective adjustment?

In fact, of course, we ask two rather contradictory things of our institutions. We ask both that they be effective at consensus building and that they be decisive – able to steer the society and make and implement tough choices. The first can lead to compromise, delay, the loss of public purpose to the narrower voices of special interests, immobilism and a lowest common denominator kind of policy. The second can run roughshod over consensus.

Both sets of functions are difficult to achieve in a mobilized, politicized society crisscrossed by regional, class, sectoral, and other differences; in a system which is increasingly constrained by fiscal limitations and international pressures; and in a polity in which power and authority are widely dispersed and shared among 11 governments.

There are a wide variety of institutions and processes we should look at here.

The first I would like to mention is the role of international institutions. They are important to a consideration of the requirements for domestic consensus in several ways. First, they are likely to become more important, diminishing in the long run the practical sovereignty of national governments. To the extent this is so, and to the extent such supranational institutions are necessary, then their legitimacy in Canadian eyes is important. It is crucial, therefore, to assure Canada an effective voice in these institutions and to ensure that the roles Canada plays in them are subject to democratic monitoring, control, and accountability at home. This seems to me an inevitable consequence of the further blurring of the line between domestic and international economies and politics, which is already far advanced.

Second, international institutions and their leaders can play a vital educational role, teaching citizens about the trade-offs on a global scale. The Brundtland Commission, with its model of sustainable development designed to bridge economic growth and environmental sanity, is an excellent example.

Third, international institutions may edge towards a greater ability to regulate and manage the dynamics of global capitalism. Just as an important element of the post-war blueprint was the legitimation and humanizing of capitalism by ensuring its regulation, so now that need is projected to the global level.

A second set of institutions which will require greater attention in the future are the mechanisms of consultation. Unlike many European countries, Canada has never developed elaborate tripartite or neo-corporatist devices, designed to ensure cooperation among the various "social partners." The number of consultative mechanisms has indeed proliferated, but they have been ad hoc, and have had little formal role in the political process.

There have been many explanations of "why no corporatism in Canada?" Most focus on the relatively weak and highly fragmented nature of business and labour interest groups, including their division on regional, sectoral, and ownership lines; on the incompatibility of such mechanisms with a parliamentary system; and on the relative differences in influence between business and labour, which prevents their acting as equal partners. Neo-corporatist mechanisms are most common and most successful in small, homogeneous countries, with strong labour movements and social democratic parties. Federalism, with its emphasis on regional and territorial interests, its division of powers, and its emphasis on intergovernmental collaboration may also be a barrier to fuller development of these institutions in Canada. Executive federalism is indeed a form of corporatism – but one focused on territorial and intergovernmental lines, rather than class or sectoral ones.

In some respects it is interesting that neo-corporatist devices have not been more widely adopted in Canada. They are most common in countries which share important similarities with Canada – small, open economies, highly dependent on foreign trade. The argument is that such countries have a particular need to work together to develop effective global adjustment strategies, to mitigate domestic conflicts, to manage the domestic impact of forces which they do not have the power to directly control, and to develop trade-offs between incomes and security.

Olson's model, to which Stewart refers, suggests that the capacity for adaptation in fact displays a U-shaped curve: it is high where organized interest group power is low (and market forces unimpeded), declines as interest group strength increases, but then rises again as interest group organization increases to encompass the whole of business and labour. The lesson seems to be that the worst position to be in is in the middle, when groups have enough power to block change but not enough legitimacy and coherence to act as full social partners, or to manage their own internal differences. The question for us – assuming we are in the middle of the curve – is whether to move to the unorganized market forces end of the curve, or to the highly organized, neo-corporatist end.

Social conditions in Canada may dictate the former, and in the free-trade agreement we seem to have embraced it. But I do think we need to rethink this issue. The current government does, in some respects, espouse a consultative model in its approach to business and to the provincial governments. But it is a highly traditional form of accommodation among elites. The lesson of the free-trade and Meech Lake debates is that such brokerage among established elites no longer commands widespread legitimacy, and that ways must be found to integrate a far broader range of groups in consultative processes, and at a much earlier stage.

Many commentators have suggested that Canada's relatively decentralized federalism is also a barrier to effective policy adjustment in the new global environment. It complicates our ability to speak with a single voice abroad. It permits internal barriers to trade which inhibit our global competitiveness. It fragments and divides the responsibility for effective adjustment policies, or for the development of national strategies in fields such as education. The premium that it places on intergovernmental bargaining and cooperation slows down policy responsiveness. And the extensive economic roles it gives to provinces create the danger of contradictory and self-defeating policy responses. Thus, for some, the challenge of global competition to domestic federalism is akin to the challenge posed by the Great Depression, where again it was suggested that federalism was obsolete in light of the new roles which government was to acquire. Global competition generates the imperative to centralize.

This is a persuasive line of argument, which suggests that the decentralization implicit in the Meech Lake Accord is precisely the wrong direction in which we should be moving. Federalism certainly does stand in the way of the kind of national consensus which Ian would wish.

However, there is another line of argument which suggests that in developing the kind of consensus the global environment requires, federalism provides us some notable strengths. Given the diversity of provincial interests, then single national policies are likely to be inherently divisive.

Provinces are much more homogeneous and manageable entities. They are much more likely to be able to develop coherent, integrated adjustment policies than a federal government which must balance all regional interests and which is widely seen to be biased in favour of central Canadian interests in other parts of the country. Provinces may similarly be better placed to bring about the consultative cooperation among the social partners than is the federal government. It may be at the provincial level that European style tripartism is best able to develop. Moreover, to the extent that provinces are able to develop effective adjustment policies suited to local needs and conditions, then the burden of decision and consensus building which falls on the central government may be much more manageable. The virtues of experiment and variety embedded in federalism may be especially important in a situation where old policy prescriptions are widely seen to have failed, and we are groping for new ones.

This is not to deny that management of the domestic politics of federalism does indeed complicate the management of Canada's role in the global economy. The scope of the treaty power, for example, remains a thorny problem as international economic relations, increasingly concerned with nontariff barriers, become more important. Nor is it to deny that one consequence of the new global environment may indeed be increased centralization within the federation, most likely to occur through the expansion of the scope of the federal trade and commerce power.

It is to suggest, however, that our version of federalism may have some unacknowledged virtues. And it suggests that the longer-run tendency of global trends may in fact be towards a diminished role for the federal government, with power flowing in two directions – upward towards more important supranational institutions, and downward to smaller governmental units more flexibly attuned to the adjustment needs of smaller communities.

We could look at many other political institutions and their capacity both for consensus building and decisiveness. The recent election campaign obviously focuses attention on political parties and elections. The results are mixed. As it turned out in Canada, the results of the electoral process were reasonably decisive on a crucial matter. On the other hand, it was a near thing; the outcome could just as easily have been a rejection of free trade, or, more likely, a massively confused result with no clear guidance. Moreover, the character of the election campaign suggests that party competition may lead to division, not consensus, and that it is a poor vehicle for a careful, responsible, and nuanced discussion of complex issues. The U.S. election campaign with its studied avoidance of the central economic and foreign policy issues facing that country suggests a similar conclusion.

Ian suggests one hopeful effect of technology: it permits greater transparency in identifying the real effects of policies and thus may foster agreement. That may be true, but such transparency may heighten, rather than resolve, conflict. And technology – in the form of polling, advertising, and the like, as it has been applied to the recent electoral process – has seemed to degrade rather than enhance its capacity for generating consensus.

More generally, there has emerged a growing tension between the logic of political democracy as currently practised and the logic of global competitiveness. In the current context, the dynamic of the political process is to give voice to domestic concerns and to seek protection from, or avoidance of, international competition and constraints. The tension between efficiency and equity has been transmuted into a tension between domestic political processes and international competitiveness. Hence, the conflict has come to be defined as economic rationality, which implies the need to constrain the forces of popular democracy – through the kind of voluntary strait-jacket the free-trade agreement hints at – versus a concern for equity, social justice, and protection against the winds of change which are expressed through the political process.

It will not, as Ian suggests, be easy to get out of this box. In my view, it will require a strengthening, not a weakening, of the social safety nets which cushion against the costs and fears of change; far better education and training policies to equip people with the skills and the self-confidence to embrace change; and the development of consultative and consensus building mechanisms which ensure that change is imposed not from the top, by a central government or anonymous market forces, but rather is generated from below and from a sense of participation and ownership in those changes.

11 Global Forces and National Policymaking

A. W. Johnson

The object of this paper is to explore the capacity of governments, and the institutions and conventions of governance in Canada, to respond to the global forces which are and will be bearing in upon the nation.

The topic on your program, I know, is Economic Decision Making in the Year 2000. But I had two problems in trying to address the topic as it is phrased. First, it is increasingly difficult to talk about economic decision making without talking about decision making generally: the major policy areas are too interrelated. Second, I personally find it difficult to talk about decision making in a generic way: the differences between the cultures and heritages of different countries, and between their constitutions and institutions, are so great that generalizations are difficult. So I have chosen to talk about Canada, as a single case study.

The character and the scale of the global forces, and their impact upon the national polities of the world, have been fully developed by earlier papers in the symposium. The question for this paper is how the politicians and policymakers will perceive these forces in Canada and what political forces and institutional limits they will confront in trying to cope with them. The further question is whether the policymakers will be able and willing to chart a course of early and accelerating response to the global pressures, thus making possible a progressive domestic adjustment, or whether, by reason of their preoccupation with local pressures, they will procrastinate until they are compelled to respond, likely with more wrenching changes, to the accumulated forces of global pressures. The paper will conclude with some thoughts as to the kinds of institutional changes that might assist the nation in coping with the international forces, and in composing, at the same time, some of the more parochial ones.

The Fundamental Issue Confronting National Governments

The heart of the problem national policymakers confront in an era of globalization is the fact that they face two powerful but conflicting sets of forces. On the one hand, there are the global forces to be coped with: an increasingly international economy; global environmental pressures; a disparate rate of economic and population growth such as between the Third World and the developed countries; and rapidly changing political and economic relations between and within the major blocs and countries of the world. On the other hand, there are the domestic political pressures to be contended with: the economic and social pressures of unemployment and of a slow rate of growth in per-capita real income; the regional pressures for greater local autonomy, paradoxically coupled with a demand for greater redistribution of economic activity between the regions of the country; the increasing assertion of the rights of particular population groups in the society; and the search for security and identity in an unstable world. Somehow or other the policymakers must cope with and bring into balance both of these sets of forces.

This is the principal dilemma the policymakers confront. But there is a second, and related one, which has to do with the squaring of their first and evident responsibility to their electors, with their growing but less obvious responsibility to make international institutions work. If there were a "global polity" – which is to say a sufficient affinity between the peoples of the world that some system of international governance were possible – then national leaders would be relieved in some measure of this second international responsibility. Such a global affinity does not exist, however; so it falls to the national leaders to empower, at the expense of their own sovereign powers, the international institutions that have been, or could be, created to cope with world matters – such as the GATT (trade), the IMF (international fiscal and economic issues), the World Bank (development assistance to Third World countries), and the United Nations (international order). True, the policymakers can, in the face of domestic criticism, argue that the long-run well-being of individual nations depends upon the well-being of the world of nations. But that is cold comfort in the face of an uncomprehending electorate, accustomed at most to four-year perspectives rather than 40-year ones.

It will be more than evident from all of this that a nation's ability to respond to the global forces we are discussing at the symposium will turn, in no small measure, upon the weight of such forces, both on the nation and on its leaders, and upon the force and the intractability of the internal domestic pressures.

The response of the nation state to globalization will not be determined, however, by the sheer weighting of the two sets of forces, difficult as that may be. It will turn, too, upon the inherent capacity of the nation itself to respond to, and adjust to, the newer and less-familiar external forces. It will depend upon the perspectives, values, and attitudes of the society: whether it is an inward-looking or outward-looking society, for example; and whether its sense of human and social responsibility is expansive enough to extend to citizens in other lands. It will depend, also, upon the capacity of the nation's (market) economy, meaning essentially the private sector, to adjust to world forces, both in converting its inputs and outputs to the high-skill, high-tech modes that are essential to competing with low-wage, borrowed-technology industries, and in finding positive uses for the resources which become unemployed in the process of conversion. The capacity of the nation to respond to global forces will also depend upon the constitutional/institutional power of the nation's political leaders to respond to the two sets of forces – global and parochial – and on their personal and political capacity to give the leadership required. It will depend upon the existence or the creation of mechanisms through which the private, public, and non-governmental sectors can achieve an overall view – or consensus – on the sector-by-sector adjustments that will be called for. It will depend, at least equally, on the imaginative use of existing parliamentary and intergovernmental mechanisms for the reconciling of regional interests, to the end of engaging these interests in the national imperatives of the global forces. Finally, the nation's adjustment to global forces turns above all on the capacity of the country's leaders – in the public, private, and non-governmental/voluntary sectors, and in the media – to achieve a public understanding of the forces and issues involved in the global adjustment, and thus a greater capacity to accept change.

These are the questions which are explored in this paper.

The Impact of Global Forces on Canada

The Layman's Perspective

I begin with the global forces with which national leaders now are contending and will continue to contend in the future.

The notion of globalization, it must be said, is for most people an abstract one, unrelated to the real world they know – their family, community, province, and nation. They get tastes of the meaning of globalization when they hear about the effects of international competition in the business they work for, and they get glimpses of the global character of finance and investment when they hear about the behaviour of financial markets. They also understand that pollution is an international problem, in particular on this continent, and that Canada and the United States should be cooperating more in solving the problem.

But the pervasiveness of globalization, now and in the future, and its inexorability have not fully entered into the consciousness, and the calculus of daily living, of individual Canadians. The same could be said about many politicians who represent the nation in Parliament. This, in itself, poses a problem for those involved in the governance of Canada: how to close the gap between the reality of globalization and its recognition.

The reality can, of course, be explained in simple terms. The goods and services that are produced today, in local communities, are consumed around the world. What is being bought is being bought from around the world. The pollution which is being produced in a single community is being felt in communities thousands of kilometres away, sometimes indeed by the whole of the global atmosphere. The population which is produced in the high-fertility countries is increasingly affecting the lower-fertility and richer countries, whether by immigration or by the pollution of the environment as a result of attempts to eke out an existence on an overpopulated and underdeveloped land. The labour markets of regional and national communities, which determine the wages and conditions of work and the right to bargain with employers, are reflected in the prices and kinds of goods and services being produced for export. They, in turn, affect the economies of the importing nations, in the competition they present for domestically produced goods. Technological advances, too, are "incorporated" into the prices and kinds of goods being exported, which similarly affect the economies and labour markets of importing countries. Differing educational levels similarly enter into the production equation, determining the capacity of a nation to produce more efficiently or to produce new kinds of products and services, thus affecting its capacity to compete with lower-wage countries.

What the public generally is coming to recognize, in short, is that when we export goods and services, we are exporting a mix of natural and human resources of: education, technology, labour market forces, pollution control measures, or the costs thereof, and of industrial design and innovation. When we buy from abroad, we are importing differing mixes of the same ingredients, and the different costs they bring with them, from other countries. And somehow or other an equilibrium must be found, as between countries, which will result in a tolerable distribution, around the globe of employment and income, and of natural and social environment.

All of this is easy to say: it is the policy implications for individual nations – including the private as well as the public sector – that pose the problem.

On the economic front, there are two forces facing Canada. One is the increasing competition being felt by the Canadian producers of goods and services from developed and newly industrialized countries; and the other is the pressure which is being felt, and will increasingly be felt, by the Canadian economy to direct more of its savings to the development of Third World countries.

The first of the two pressures is the more obvious one, of course. It is to be seen, in its ultimate measure, by the fact that many other nations are catching up to the most developed countries in their productive capacities. This is clear in the "convergence," over the years, between the per-capita real GDP of certain European and Asian nations and that of the United States (a subject Helliwell dealt with in his paper). Canada, it is true, has itself been catching up on the United States since World War II: our per-capita real GDP, when expressed as a percentage of the U.S. per-capita real GDP, has increased from 81.7 per cent in 1950 to 90.1 per cent in 1985 (in U.S. dollars). But look at the rates of increase in the per-capita real GDPs of other countries: Japan's per-capita GDP has risen from 25.2 per cent of the United States' in 1960 to 70.4 per cent in 1985; West Germany's has risen from 42.3 per cent in 1950 to 77.8 per cent in 1985; France's from 42.3 to 77.8 per cent; and Sweden's from 61.8 to 75.5 per cent. In some of the Asian countries outside Japan, the convergence is equally significant in what it portends for the future; Hong Kong and Singapore have increased their per-capita real GDP from around 25 per cent of that in the United States in 1960 to 70 per cent in 1985; South Korea from 8.6 per cent in 1953 to 23.3 per cent; and Malaysia from 14.7 to 25.2 per cent [Summers and Hoskin, 1988].

The competitiveness of these faster-growing countries, it goes without saying, is increasing. And Canada must respond if it is to maintain its competitive position and its real per-capita levels of GDP. True, Canadians have in recent years learned to live with near-zero increases in their real wages and benefits – between 1975 and 1987 they increased by only 1.5 per cent[1] – aided no doubt by the fact that many families increased their incomes by second-spouse participation in the labour force [Statistics Canada, 1988]. But even to maintain the lower rates of increase in GDP of recent years, Canada must be prepared continually to adapt its production and its productive capacity to meet foreign competition.[2]

The challenge to Canadian policymakers – both public and private – is how to do this in an economy where there are so many "givens": high wages in international terms; a labour market that is unlikely to respond quickly to the realities of an international labour market; established modes of production in the capital plant which exists (and which cannot readily be transformed); a substantial measure of foreign ownership which presents greater uncertainty as to whether the required adjustments will take place in Canada or elsewhere; and the developing imperative of environmental controls which can only increase the costs of production.

In no small measure Canada's adjustment must take the form of enhancing the quality of the inputs which go into the nation's production and enhancing the technology and design which go into the development of new products. And that means more and better education of the human resources – from primary school through to colleges and universities; it means greater expenditures on research and technology, both in Canada's industries and in its universities; it means greater emphasis on design and the steadfast support of potential innovations; and it means a concerted effort on the part of the private, public, and non-governmental sectors to achieve all of this. In fact, Canada's record, or capacity, to make these adjustments has not been encouraging, but that is the subject of the next part of this paper.

All of this has to do with the first of the two global economic forces with which Canada must contend: the adaptation to increased competition from the developed and the newly industrialized nations of the world. The second challenge, the inevitable global pressure on all developed countries to help Third World countries to contend with low or negative growth in real per-capita GNP, has been an even more serious and intractable problem.

The measure of the global challenge is to be seen in the levels of GDP in the more depressed countries in the world – expressed in terms of their percentage of real per-capita GDP in the United States [Summers and Hoskin, 1988]. In Africa the per-capita levels of real GDP ranged from 1.3 per cent (of U.S. per-capita GDP) in Zaire (1985) through to 7.6 per cent in Zimbabwe, through to 16.2 per cent in Nigeria (an exceptional case south of the Sahara). In the subcontinent of India, the per-capita real GDP ranges from 5.1 per cent of that of the United States in Bangladesh, through to 6.0 per cent in India, and 12.4 per cent in Sri Lanka. In Southeast Asia, Indonesia's per-capita GDP has reached 9.6 per cent of that of the United States. In Central America, Haiti's per-capita real GDP is 4.9 per cent of the U.S. level, El Salvador's is 9.0 per cent, and Jamaica's is 13.4 per cent.

These are the more difficult cases, of course. One must add to the list the "better-off" and (in North America) better-known Third World countries, such as Argentina, Brazil, and Mexico, where the GDP per capita lies between 25 and 30 per cent of that of the United States.

The point to be made is obvious. The very logic of world development, if it is to be relatively peaceful, and if it is to see the resolution of such global problems as pollution and population growth, demands greater contributions from the developed world towards the development of the Third World. The economic logic, too, if one is prepared to look beyond the short-term adjustments involved, would argue that contributions to the Third World should be increased – to provide the expanding markets that newly industrialized countries and developed ones need.

The mechanics by which this will be accomplished are straightforward enough (at least in their essence): the developed world makes low-cost loans to the developing world to be invested in projects that will lead to economic growth, and the loans are paid off from that growth, from the selling of new exports from the developing world to the developed world. The immediate "payoff" to the developed world, from making the loans, is the creation of a market for its products and services – both of which are needed by the developing world to mount and maintain the investment projects financed by the loans.

In the practical world, however, things are not as straightforward as this: there are asymmetries and adjustments which work against the simple economic logic of the matter. The payoff, for example, doesn't necessarily go to the country which makes the loan, and it may not be immediate; the loan may not be made for the most productive of purposes; and the sectors within the lending country which "paid for" the loan by foregoing domestic investment, in favour of the foreign loan, are unlikely to be the sectors that benefited from the "payoff" (i.e., intersectoral adjustments are required). More than that, when the time comes for the lending country to accept the exports from the developing country concerned (directly or indirectly), more intersectoral adjustments will have to be made.

The point of all this is not to try to instruct an audience such as this one in simple economics. Rather, it is to portray the fact that there is not for the politician any clear and simple linkage between benefit of supporting foreign loans and assistance and the cost of doing so. Indeed, if anything, there is a positive cost to such loans and investments, namely, the political cost of allocating domestic savings to international purposes rather than domestic ones. It is the story, again, of domestic, parochial forces versus international ones – at least insofar as the political process is concerned.

The willingness of national political leaders to take on the whole question of Third World development, in short, knows certain limits – as is evidenced in the data concerning developed-world assistance to Third World countries. Furthermore, that willingness is diminished to the extent that certain of the developed countries are less willing than others to bear their "fair share" of the burden of contributing to the Third World.

The international imperative of investing in Third World countries, however, remains. It becomes all the more evident when one considers the population that will have to be supported by the world economy in the future – notably in Third World countries. World population is expected to rise to somewhere between 7.5 and 9 billion in the year 2025 (from its present 5 billion).[3] The OECD countries' share of that population will fall from its present 18 to 11 per cent (North America, Europe, and Japan), and that of the Soviet bloc can be expected to fall correspondingly. The share of the two largest countries of the world, China and India, will be an estimated 33 per cent; and the balance, some 40 to 50 per cent, will be found in Africa, South and Central America, and other areas of Asia and the Middle East. The growth of the population in the developing world will be exacerbated by the rapid increases in the numbers of people living in urban centres – over 2 billion persons by the year 2000. The population in the developed world, on the other hand, will be marked by an increase in the proportion over 65 years of age – in Canada's case some 25 per cent of the population in the year 2026 – with all that implies in terms of retirement and health costs.

The measure of congruity between population growth and economic growth, on different continents and in different countries, will also be critical to the world's future. Professor Lesourne has had something to say about this in his paper: he estimated that the OECD countries, taken together, will continue to grow in real per-capita terms; that the Soviet Union may find it difficult to adapt to the world economy, but will, under certain scenarios, grow; and that China and India may well be able to sustain their population at rising levels of per-capita income [Lesourne, 1988]. This would leave the rest of the world's population – some 4 billion people – in the slowly growing, and the poorest, continents and countries of the world.

The pressures of such a situation are self-evident: the developed and newly developing countries will surely be called upon to decide how to resolve them. The options are clear, if the choice among them is not: to encourage family planning in every way that is possible; to allocate a more generous proportion of the savings in the developed world to investment in the Third World; to relieve at least some of the population pressures by accepting more immigrants, particularly from the "pressure points" in the world; or be prepared to use force in the face of whatever violence may erupt as a consequence of widening disparities between the rich world and the poor world.

The dilemma faced by the politicians of the developed world is a difficult one: the balancing of short-term costs versus long-term benefits, and the choice between domestic interests and pressures and international ones.

The same dilemma is being faced with respect to the environmental issues the globe confronts, except that here, thanks to an effective information campaign from non-government organizations, the public understanding of the costs of temporizing and compromising is very much greater.

It is known, for example, that the earth's atmosphere is being seriously affected by increases in the levels of carbon dioxide, and that the earth's temperatures and sea levels may be expected to rise significantly over the next 40 years. The consequences for low-lying coastal cities and delta areas and for food production and settlement patterns are also known. It is known that the ozone layer shows signs of depletion, as the emission of certain industrial gases increases. The potential results are widely recognized. It is known that prolonged acidification of the environment, reaching across borders of Europe and North America, has raised the threat of widespread deforestation, leading to massive soil erosion and the flooding of valley farmlands and towns. It is known that massive deforestation is occurring, too, as a consequence both of burning, in an effort to increase the areas of cultivatable land in poor countries, and of the overproduction of timber resources, in relation to their replacement by planting. Once again, the effects, in erosion and flooding, and the loss of national habitat, are evident.[4]

The inevitability of this environmental deterioration – in the absence of a fundamental change in economic and political behaviour – is to be found in the very imperatives of the other two major global forces: the imperative of economic growth and the imperatives arising from increases in population and poverty. There is an essential nexus, in short, between the three forces. To solve the problems of population and poverty, economic growth is required; but for the growth to be sustained, the world's environment must be sustained. Conversely, to sustain the environment, the problems of population and poverty must be solved, and the processes of growth, by which this is achieved, must be modified so as not to "consume" the environment in the course of trying to increase human consumption.

This is the essence of the concept of "sustainable growth" that the World Commission on Environment and Development (the Brundtland Commission) is calling for. What the Commission is saying, in short, is that there must be an obligatory balancing, in all public and private decisions, of economic interests and environmental ones. What this means, in the real world of decision making, is the removal of short-term gains from "unadulterated" economic growth in favour of an unadulterated environment for the future. To achieve this – to legislate away such short-term gains in a world where some countries will cooperate and others will not – is to look towards an almost universal understanding of the hazards of *not* doing so. This is the precondition, indeed, of concerted government and industry action to achieve almost any of the economic, social, or cultural adjustments which are called for. It is the ultimate policy tool.

Responding to Global Forces: Canada's Capacity to Respond

These are the three major global forces: the development of the global economy; the growth of the world's population; and the degradation of the globe's environment. There are others, of course, and there are more facets to these forces than have been discussed. But the point has been made: all nations are now living in a global economy and environment and none can escape the consequences of this cohabitation. The question that confronts them is their capacity to respond to the global forces.

A nation's capacity to respond, as I said at the beginning, depends upon a wide range of questions, including:

- the character of the society and its inward- or "outward-lookingness";

- the extent to which the institutional arrangements reinforce the "inward-lookingness," or otherwise;

- the will of political leaders to take on the global challenges, and the measure of the public understanding of the global imperatives;

- the constitutional powers of the national government to bring about required adjustments in the future;

- the existence or otherwise of mechanisms through which the public, private, and non-governmental sectors of the society can achieve some consensus, or sense of direction, as to the economic and social adjustments that are called for; and

- the demonstrated capacity of the nation to respond, in policy terms, to the external challenges it confronts.

These are the questions to be addressed, in however cursory a fashion, in making some assessment of Canada's capacity to adjust.

The Nature of the Nation and Its Political Discourse

I begin with the character of the Canadian society and its capacity to respond to global forces. One would have thought that Canada, with its wealth of national and human resources, with its highly developed economy and its civil society, with a political system which accords to its peoples an almost unparalleled measure of freedom, justice, and stability, ought to be better able than most nations to cope with global pressures. Unhappily, however, there are proprieties and humours of our society which have produced in us a kind of introspectiveness and preoccupation with national self that limits our vision of the outside world and limits our capacity to respond to external change.

All of this arises out of the loins of our history and our evolution. We are two nations linguistically, but one nation politically – which leaves open the question of the existence of a single community in social and cultural, and even, sometimes, political terms. The consequence has been a never-ending quest for a formula that will reconcile political nationhood with the existence of two or more distinct societies, or, in the alternative, a formula that will provide to Canada's several societies a transcending and a shared identity – one which will not be seen as threatening to the original or "national" identities.

The English-speaking part of the nation, for its part, has never been a homogeneous identity in geographical terms. Its unity was to be found in its common ethnic origins (British) and in the shared values and institutions that sprang from those origins. It came, too, from the sharing of a common environment of space and clime and sparseness of population. Over time, however, an ethnically based society was transformed into a multicultural one, accompanied by a remoulding of cultural attributes, suitable to the new community. This transformation has been uneven in time, place, and intensity, with a burgeoning of multicultural adjustment occurring in Canada's metropolitan areas and a considerably smaller one in the less populous areas of the country – save, of course, for the Prairie provinces which had experienced their own transformation in earlier decades of the century. These differences in the pace of change have contributed to an already evident dispersion in values as between those regions of the country that are substantially rural and those that are marked by urban concentrations.

The French-speaking part of Canada, for its part, which traditionally defined itself in terms of its language, history, and differentiated culture, as well as its status as a minority, has come to develop two views of itself. One is that of being a partner in a bilingual nation, Canada – with its language rights now being guaranteed; and the other is that of a territorially based French-speaking and ethnic society, or nation, Quebec. This latter view, while recently confirmed by the "distinct society" clause of the not-yet-ratified Meech Lake Accord (1987), is nonetheless being blurred in the fullness of time by the same "multiculturalization" of the French society that occurred in the English one [see Breton's thesis, 1988].

These cultural and linguistic differences and changes are reason enough for Canadians to think of themselves as the "undefined country." But the regions of Canada, too – the creatures of the nation's space and expanse and history – are tending to intensify their distinctiveness and their affinities. Differing and sometimes competing economic interests, a sense of powerlessness in the councils of the national government on the part of the peoples of western and Atlantic Canada, and a cultural communications system, notably television, which shows Canadians far less about themselves and one another than it does about Americans, all are contributing to this sense of regionalism.

Canada in short, is an uncertain country, and as all uncertain countries it has tended to be preoccupied with itself. Canadians need only be reminded of the events of the past 20 years to recall how inward-looking we have been. There has been the "Quebec question": governments of Quebec moved successively from demands for "special status" within the federation through to a referendum on the creation of a sovereign Quebec, associated in some way with the rest of Canada, and back to a demand for special and distinct status within the existing association. Because changes in the Constitution would be required for any of this, all of the provinces were involved in the debate, step by step, and came to share the same aspiration for a larger status within the federation.

There was the bilingualism issue: if Canada was to be a single nation, not an English-speaking one and a French-speaking one, it would have to extend the right to use either language all across the land. Canadians debated the issue for nearly two decades before finally agreeing, in the constitutional amendments of 1982, that there should be a Charter of Rights and Freedoms which would guarantee this right, along with democratic and legal rights, to all Canadians.[5]

There was the western alienation issue, which found its origins in grievances over national policies that saddled the West with high costs of production and consumption to the benefit of the tariff-protected industries of the "East," but did little to protect westerners from the vicissitudes of the international markets in which they sold their products. These grievances have periodically been fuelled by new national policies that seemed blind to western interests – the National Energy Policy being the most recent and vivid example. Paralleling the western disaffection, in kind if not always in decibels, have been the persistent demands of the Atlantic provinces that the great disparities in economic activity between their region of Canada, and Upper and Lower Canada, must be reduced.

These are the major issues that have preoccupied the nation. Many more illustrations could be given, to the same effect, but the point being made is clear: the discourse of politics in Canada has been substantially domestic, or parochial, in character.

The Institutions for Reconciling Regional and Cultural Differences

What is more, to come to the second test of a nation's capacity to respond, the institutional structure for the resolution of these cultural and regional differences has tended to reinforce a regional view of the world of policy issues. Federal-provincial conferences of the provincial premiers and the Prime Minister of the nation have tended to supplant Parliament as the institution in which provincial interests are represented and reconciled in one way or another with national interests.

The alternative – a Parliament of Canada structured so as to genuinely represent regional interests, via the Senate, as well as the population at large, via the House of Commons, and *obliged* by reason of its national, international, and regional obligations to seek a reconciliation between these three sets of responsibilities – has not been seriously considered in the nation.[6] In the absence of such a national body, the Federal-Provincial Conference of First Ministers (CFM) has increasingly assumed the regional role, to the point, indeed, that the 1987 Meech Lake Accord (not yet ratified) proposes to give constitutional status to the CFM and to require at least two meetings of that body every year.

The problem, of course, is that given the constitutional responsibilities of provincial premiers – over provincial matters as described in the Constitution – and given their political constituencies, this body is almost bound to represent provincial and regional interest *outside* the context of international, and even sometimes national, issues. Some premiers will contend this is not so, that they are quite capable of a national and indeed an international view. But the question is not one of personal breadth (though that is a pertinent question); it is one of the constitutional and political responsibilities the premiers are obliged to discharge. Only in a national Parliament, it seems to me, where regional representation is accorded legitimacy alongside representation by population, and where the responsibilities of governance extend across regional, national, and international issues, can this trilogy of responsibilities and issues be composed.

The case for this proposition is to be found in the agendas and the discussions of the Conferences of First Ministers. Aside from the constitutional conferences where Canada's system of governance was under review, the discussions have tended to centre on regional issues and on provincial grievances against the federal government. They have tended, too, to convert substantive issues, affecting the people of Canada generally, into federal-provincial issues or disputes (see, for example, the federal-provincial discussions on education, medicare, and communications). At times, indeed, federal-provincial meetings have tended to create for the television-viewing public – the conferences are televised, as all Canadians know – the impression that Canada is a land of perpetual regional conflict.

The Constitutional and Institutional Powers of the National Government

This is the context within which the Government of Canada is functioning and the perspective from which it must address the global forces. The question is whether it possesses both the will and the powers to do so effectively.

As for the will of Canada's political leaders to take on the global challenges, they (the leaders) have tended to be shaped by the internal forces confronting them, rather than by the global ones. Any propensity they might have had to lead the nation in a more international direction has been blunted by the lack of public understanding of the forces of globalization and of the adjustments these forces will ultimately exact. The media, which are virtually the only vehicles by which a greater public understanding might be developed, have tended to reflect the nation's preoccupations, rather than to reach beyond them to international issues. And the smallness of Canada's markets for information is such – some 19 million English-speaking Canadians and 6 million French-speaking – that there has been little commercial room for more specialized and sophisticated journals. National institutes or foundations, which might be in a position to take on this large task, have tended to work in specialized areas or from particular perspectives, and often have chosen the more familiar or conventional courses.

There has, in short, been little constituency for the kind of leadership which is called for when international forces are challenging national ones and little concerted effort to develop one. The major exception to this generalization has been, as I have said, the environmental groups, that have succeeded in developing in Canada a considerable consciousness of the world's environmental problems.

As for the *power* of Canada's national government to respond to global forces, it, too, is limited. This is so by reason of the very character of the nation and its system of governance. No national government in a federal state can be expected to possess *all* the powers required to respond to external forces – particularly in a highly decentralized federation such as Canada. In fact, to determine, in such a state, which order of government has the power to respond to which aspects of global issues, one must consult the Constitution and the distribution of powers between the federal and provincial governments. Certainly this is true in Canada, as can be seen by looking at some of the responses the nation may be called upon to make to global forces.

If one of the appropriate responses to international economic competition, for example, were to be improvements in the education systems of Canada, then only the provinces could respond. If another were to involve changes in labour-relations laws, then except for industries which fall specifically under federal legislative authority – whether under the enumerated heads of Sections 91 and 92, or by way of judicial decisions under the peace, order, and good government clause – only the provinces could respond. If another appropriate response were to involve legislation or regulations concerning specific industries, then which order of government would be called upon to respond would depend upon the industry affected. The response in respect to the securities and insurance industries, for example, would have to be provincial, and that in respect to banking and aeronautics would be federal.

The trade and commerce clause, for its part, does not endow Canada's national government with the same plenary powers over nationwide trade as does its U.S. equivalent – though recently certain justices of the Supreme Court of Canada have shown signs of breathing new life into the clause. Moreover, it is far from clear that the national government's treaty-making power – which exists by constitutional convention, not by enumeration in the Constitution – endows the Government of Canada with the power to bind provincial governments, by way of a treaty, with respect to matters within provincial jurisdiction.

There are, of course, situations in which the power of the Government of Canada to respond to global forces is quite clear. In an emergency – a judicially defined emergency – the Government of Canada may speak for the nation on any subject, under the peace, order, and good government clause. The Government of Canada similarly has the power, with respect to the Criminal Code, to legislate on a wide range of subjects. And there are the specifically enumerated powers in Section 91 of the Constitution.

As for the "non-economic" areas of the Constitution – social policy, environment, and immigration – the constitutional powers of the federal and provincial governments are mixed, once again. If sectoral and industry adjustments called for changes in the social security system, the determination as to which order of government should be expected to respond would depend on what changes were involved. Changes in social services would be the responsibility of the provinces, though employment services have long been offered by the Government of Canada without constitutional challenge. Changes in the unemployment insurance plan would be the responsibility of the federal government, but the introduction of a general income supplementation plan for low-earnings families could be introduced by the provinces (some would argue *only* by them), *or* it could be introduced by the Government of Canada under its spending and taxing powers, with any associated social services being supplied by the provinces.

Changes in immigration laws, on the other hand, in response to external population pressures or to internal political or economic pressures, would in the final analysis be the responsibility of the national government. That, however, would be subject, under the Meech Lake Accord, to a provision under which federal-provincial agreements in the field of immigration policy would be constitutionally binding.

As for environmental laws, except under the Criminal Code and except for judicially defined emergencies, it is not entirely clear just where provincial jurisdiction ends and federal jurisdiction begins. Earlier constitutional decisions held that the regulation of pollution was a provincial matter, under "property and civil rights," except where the situation at issue met a number of earlier-articulated judicial tests, which, taken together, demonstrated that only federal action would be sufficient to meet the needs. In more recent decisions, however, in particular the Crown Zellerback case of 1988, the Supreme Court of Canada has upheld the national regulation of pollution where the particular problem at hand "required national treatment unobtainable through provincial action" [Russell, forthcoming].

It will be evident from all of this that the capacity of the Government of Canada to respond, by itself, to the whole range of global interests is limited. To be able to do so, or to be able to develop a strategy for doing so, would require provincial government support. The question is how this intergovernmental cooperation could be brought about: how to superimpose upon domestic and provincial concerns a transcending national concern.

The constitutional mechanisms for doing this are well known: the use of the federal spending power, by the Government of Canada, to persuade provincial governments to adapt their programs to national needs, and the amendment of the Constitution to grant to the federal government the additional powers it requires to meet new national responsibilities. Both mechanisms, however, have been weakened in their use and under the Meech Lake Accord. The spending power has fallen into disuse since 1977, under pressure from the provinces, and would, under the Meech Lake Accord, be constitutionally weakened (by the opting-out mechanism). The power to amend the Constitution so as to widen federal powers has similarly fallen into disuse and would similarly be weakened in the Constitution under the Meech Lake Accord (by providing to non-agreeing provinces the power to "opt out" of amendments which are agreed to by seven provinces representing a majority of the people of Canada).

Clearly, the potential for a strong national government able to respond to international forces will be weakened if present institutional trends are pursued. The consequence of doing so would be to leave open only two avenues for achieving a concerted Canadian response to global forces: the use of federal-provincial conferences as the vehicle for declaring and realizing the national interest – where necessary at the expense of the provincial interests; or trusting that the Supreme Court will increase federal powers, where required, by increasing its reliance on the peace, order, and good government clause, or by increasing its emphasis on the twin tests of "national concern" and the ability or inability of the provinces to resolve particular problems by acting together.[7]

The Public and Private Sectors and Responses to Global Forces

Paralleling the importance of a strong national government and of supportive provincial governments, to effective adjustments to global forces, is a private sector that is both innovative and entrepreneurial and prepared to work with the public sector in achieving economic growth that is sustainable in every sense – environmental, economic, social and political.[8] The same is true of the public sector *vis-à-vis* the private sector.

The record of the two sectors working together in Canada, however, has not been an encouraging one. There have been occasions in the nation's history when a strong interrelationship did exist, notably in periods of crises, for example, such as the inflationary period of the mid-1970s. There have also been sporadic proposals for some mechanism which might bring the public and private sectors together in economic policy matters, such as the tripartism that was discussed during the late 1970s, and the notion of an industrial strategy, espoused by the Government of Canada during the same decade. In the end, however, nothing much came of these proposals.

The reason for this "separation" of the private and public sectors, it seems to me, is a rather deeply held view as to the roles of the two sectors. The private sector's role, it generally is held, is to produce economic growth, employment, and income, with as little government intervention in market mechanisms as possible. The public sector's role is to produce the conditions of stable economic growth by way of macroeconomic policy; and to assure, through social security and environmental measures, that the quality of the human and natural environments produced or affected by the market economy is maintained at acceptable levels.

This definition of roles (obviously not unique to Canada) has meant in this country that the state has assumed, directly, most of the responsibility for an adequate social security system – including medical and hospital care, pensions, and a guaranteed income for the elderly, income support for families of labour force age when they face the contingencies of unemployment or sickness, child welfare and (in some measure) child care, and an increasing range of social services designed to enhance the quality of life for the needy individual, including his/her optimum participation in economic and social activity. The private sector has thus been substantially relieved of responsibility for the social security of its employees.

This same schema of responsibility seems to apply with respect to environmental issues: it is government which is expected to ensure that the productive process does not degrade or consume the environment and is expected sometimes even to finance a part of the cost of environmental clean-ups. The private sector is expected to respond to the dictates of government, of course, but not, generally, to assume direct responsibility for the development of codes of environmental conduct.

This "separation" of the roles and the responsibilities of the private and public sectors, while seen to be natural to most Canadians, has led to some unforeseen and unfortunate consequences in policymaking. The private sector – business and labour, and for that matter the growing non-governmental sector of public and private interest groups – has been left with little or no responsibility for making the hard choices that are involved in social and environmental policymaking. It is free, as a consequence, to make sweeping criticisms of the social security and environmental measures which are put in place: that it is inimical to economic growth or that it leads to public expenditure levels which the nation cannot afford; or, in the alternative, that the measures are inadequate and in need of improvement – without any indication as to how the improvements should be financed. The public sector, for its part, is free, on the other hand, to develop social and environmental policies with little reference to their ultimate effect on the private sector.

The private and non-governmental sectors, in short, are in the happy position of having no responsibility for the consequences of the positions they advocate, and the public sector is in the happy position of being able to develop public policy, if it chooses, independently of detailed consultation with the private sector.

These roles – of responsibility and non-responsibility – are reversed when it comes to the production of growth, employment, and income, by way of the market economy. Here, except for macroeconomic policy, which is designed to provide the conditions for an effective free market, it is the private sector that is responsible for achieving the desired results. Government is not responsible for the functioning of the market economy – indeed, under the accepted wisdom, government is positively expected *not* to intervene. The facts, however, do not accord with the doctrine: government *does* intervene in the market economy in a good many ways. But because there is no microeconomic policy framework by which it might be guided in its interventions – such a policy framework being incompatible with the prevailing system of thought regarding the market economy – government is "free" to intervene in the economy adventitiously.

The existence of these "separations" between the public, private, and non-governmental sectors in national policy matters clearly is not conducive to the kind of policymaking that is called for today – which is to say, as was said earlier, a concerted effort to convert the inputs and outputs of the economy to the high-tech modes that are essential to competing with the low-wage, borrowed technology industries of newly industrialized countries. Sadly, however, little thought is being given to the development of mechanisms for engaging the public, private, and non-governmental sectors in such decisions.[9] The consequence, as will become evident in the paragraphs which follow, is that Canada is weakened in its ability to respond strongly and comprehensively to international competitive pressures.

The Record of Canada's Responses to External Forces

This, in its essence, is the impression that emerges from examining the character of the nation and its system of governance, in an effort to assess the capacity of the country to adapt to global forces. Institutionally and politically, Canada's ability to respond quickly and forcefully knows very real limits. This appears to be borne out when one looks at the actual record of Canada's responses to external economic and environmental pressures.

On the economic front, Canada has not demonstrated any great concern about upgrading the "ingredients of production" which would make it more competitive.[10] In the field of research and development, for example, Canada continues to spend less on R&D than do most developed countries. In 1985, we devoted 1.38 per cent of our GDP to R&D, compared with 2.83 per cent in the United States, 2.81 per cent in Japan, 2.66 per cent in West Germany, 2.33 per cent in the United Kingdom, and 2.31 per cent in France. Only Italy, among all the OECD countries, spent less of its GDP on R&D than did Canada. Nor has Canada's record been improving: the GERD/GDP ratio, in 1981 dollars, has scarcely changed between 1982 and 1988.[11]

In the field of higher education, to take another example, Canada is actually spending less on university and college education per student in 1988-89, in real terms, than it was in 1978-79: $8,900 (estimated) compared with $10,000. The story behind this decline in support for higher education is revealing, relative to what has been said about Canada's institutions of governance. From 1967 to 1977, the Government of Canada played a significant role in setting priorities in this field, meeting 50 per cent of the operating expenditures of universities and colleges by way of transfer payments. These transfers, being tied to increases in the operating expenditures of universities and colleges, gave the provincial governments a strong incentive to maintain high levels of support to postsecondary education (PSE) institutions. In 1977-78, however, in the face of heavy pressure from the provinces to end all shared-cost arrangements, the Government of Canada "untied" its transfers to the provinces – which is to say, agreed to increase its payments to them each year (indexed the payments, indeed) without regard to what happened to the level of operating expenditures in the universities and colleges or to the level of provincial grants to these institutions. The result was almost immediate: provincial grants to PSE institutions fell, from $7,760 per student in 1978-79 (1981 dollars), to $7,600 in 1979-80, and down every year to $6,200 in 1986-87.[12]

In the area of microeconomic policy, Canada's record of adaptation to global pressures is similarly flawed. The Government of Canada has been unable to make up its mind as to whether it has a role to play in industry and sectoral adjustments. Nominally, it would be possible to take one of two positions. The first would be that government has no place in such market adjustments, save for creating the optimum environment for the functioning of the market economy (macroeconomic policy). The second would be that government *should* develop some microeconomic policy view, in collaboration with the private sector, concerning which sectors and industries are the more promising ones and which are less so. Whether this "view" were to constitute no more than an "intelligence" framework by which corporate strategies and government policies might be better informed, or whether it were to serve as an instrument by which government policies for the encouragement of growth were developed, or whether it were to serve as the foundation for a private sector/public sector industrial strategy – some such view would be developed, if for no other reason than to guide government in such interventions as it did decide upon or was pressured to undertake.

In fact, the Government of Canada has straddled the fence between these two positions. On the one hand, it has proclaimed its belief in a free market economy, with little government intervention; and on the other hand, it has played a quite substantial role in industry and sectoral adjustments. To be specific, it has, in particular circumstances, intervened to support failing industries; it has committed billions of dollars to the development of selected industries (the petroleum industry comes to mind); it has used its trade powers to negotiate limitations to the import of particular commodities (notably automobiles); and it has intervened to affect or determine the location of whole industries (in prospect, the aerospace industry). The interventions have not been made in the name of any general microeconomic policy nor within the context of an overall strategic framework. They simply are made, and the observer is left to divine the reason – whether it be for regional, federal-provincial, or purely political reasons.

The point being made is this one: the record of government in Canada in facilitating sectoral and industry adjustment in the face of global economic pressures has been largely an adventitious one. And this has not contributed to Canada's economic growth.

The story of government intervention in respect of regional economic development is a quite different one. Here there *is* an official policy, supported by all political parties and affirmed, indeed, in the Constitution: regional disparities in economic activity and opportunity across the nation should be reduced.

This concern about regional disparities is as old as the nation itself. But it first took shape as a paramount national issue in the 1960s – a decade when so many of the nation's discontents were coming under scrutiny. The Royal Commission on Bilingualism and Biculturalism was recommending that Canada be made bilingual; the Government of Quebec was demanding special status in its *de facto* constitutional powers; and the Atlantic provinces were insisting that their long-standing grievances be recognized as well – namely, the disparities in economic activity in the Atlantic region in relation to the rest of Canada.

It was in this context – a nation-building context – that concerted action was taken by the Government of Canada to cope with the issue.[13] A Department of Regional Economic Expansion (DREE) was established, with a broad mandate, a substantial budget, and great hopes for the future. In the years that followed, many billions of dollars have been spent and many institutional changes have been made; but the regional disparities remain, apparently, intractable.

Some measure of the effort that has been made is illuminating. Since the inception of DREE, expenditures on regional economic development have risen from $150 million in 1969, to $590 million in 1979-80 and up to an estimated $1,330 million in 1988-89. Expressed as a percentage of total government expenditures during the past five years (excluding debt charges), regional development expenditures have increased from 0.67 per cent (of expenditures) in 1984-85 to 1.33 per cent (estimated) in 1988-89.[14] Interestingly, the percentage in 1988-89 is almost the same as the one in 1979-80, namely 1.33 per cent compared with 1.31 per cent, indicating that regional development expenditures have kept pace with the very large increases in public expenditures over the past decade.

The elaboration of governmental institutional arrangements for the administration of the regional development function is also significant. Organizationally the government has moved from a single, powerful minister of regional development, through, now, to the existence of three ministers responsible for this area of policy: the minister in charge of Western Diversification Office; the minister in charge of the Atlantic Canada Opportunities Agency; and the minister of the Department of Industry, Science and Technology, responsible, among other things, for the Quebec Regional Development Office and the Office for Northern Ontario.

All of the dynamics are in place, in short, for continuing and increasing the expenditures on, or in the name of, regional development. But no measures have yet been developed, at least so it would appear, for determining the effectiveness of these expenditures in actually reducing economic disparities. What is more, there is no perceptible policy relationship between the part of the government which concerns itself with this redistribution of economic activity across the country and the part of the government which is concerned with the economy and economic growth, generally. This manifestly limits the capacity of the government to achieve a balance between its response to international competitive forces and its response to regional ones.

These are some of Canada's economic policy responses to the challenges of a global economy. Turning to the social policy side, the story is different. Here, Canada is much better equipped, in its social security system, to ease the social and employment adjustments that are brought about by a changing economy.

The comprehensiveness of the nation's social security system has already been referred to. For people of labour force age – those who are likely to be exposed to intersectoral and interindustry adjustments – unemployment insurance is available, coupled with income support benefits for children, plus comprehensive and universal health care. In the event that alternative employment cannot be found after unemployment benefits have been exhausted, provincial social assistance benefits are available.

On the face of it, it is a good and a complete system. But there is a flaw in it, which is particularly evident in a rapidly changing economy. No income supplementation is available to the longer-term unemployed *after* their unemployment benefits have been exhausted, short of the still-demeaning social assistance, or "welfare," benefits. Even when the unemployed person, or his/her spouse takes part-time, or temporary, or intermittent, or low-paying employment, and the family income remains insufficient, no income supplementation is available. It is either full-time employment or, after unemployment benefits expire, welfare.

It is true that the unemployment insurance plan has been "adapted" to make it possible for some people with intermittent employment to qualify for unemployment insurance in between their intermittent jobs. But these benefits are only available in certain designated areas of the country, and only to people whose intermittent employment is regular and of a certain duration. No income supplementation is available to others – notably to people who take part-time or temporary employment as an alternative to welfare.

Proposals have been made by two royal commissions to fill this gap in the social security system – both of them recommending a universal income supplementation plan (or plans) for families with low earnings.[15] But the implementation of such a plan would require either the elimination of the present (unfair and expensive) income supplementation measures available under the unemployment insurance plan, or, in the alternative, substantial additional funding from the treasury. The former has been found to be politically unacceptable, to all three national parties, and the latter is fiscally unacceptable without tax increases. The prospects for reforms in the social security system, in short, to facilitate the intersectoral adjustments which global free trade will bring about, are limited.

The last aspect of Canada's record of adaptation to global forces which is considered here has to do with the environment. Here, the need for changes in public and private decision making is more evident than it is even in the economic and social policy fields. The issue, as the Brundtland Commission has in effect said, is whether individual nations are prepared to forego or to fundamentally alter the kinds of economic production and growth that depend upon environmental degradation or depletion. The same question applies to the public and personal services that pollute the environment.

No full assessment of Canada's record is available, and understandably so: it would (will) require an assessment of all the regulations and tax and expenditure measures of both orders of government, and their effectiveness in preventing or stopping pollution in any operation that has the potential to pollute. There is, nonetheless, some revealing evidence as to Canada's position.

Using the narrowest of all measures, namely the expenditures of departments of the environment, Environment Canada seems to have fallen back: whereas the budget for that department was some $900 million in 1984, today, and over the past three years, it has stood at $800 million [The Globe and Mail, 12 November 1988]. Using a broader measure – national expenditures on environmental protection – Canada is estimated to be spending slightly more than 1 per cent of its GNP to this end, compared with the average of 1 per cent for OECD countries generally. It is instructive to note which countries are spending more than this: Japan at 2.1 per cent of its GNP, the United States at 1.8 per cent, and West Germany and Sweden at 1.5 per cent. (It is estimated that the private/public sector split of these expenditures falls in the 40-to-60-per-cent range.)[16]

The broadest measure, and the more appropriate one, would be to quantify all of the environmental impacts, positive and negative, of all public and private policy measures – of whatever kind – and then determine the extent to which the nation is meeting them. (One example of such a measure would be the costs to the environment of agricultural subsidies which lead to the depletion of "natural capital.") When this broader measure has been developed, we will know what must be done to achieve "sustainable growth" [MacNeill, 1988].

One could not conclude a review of Canada's responses to global forces without referring to its "outward" responses: its responses to the peoples, the nations, and the international organizations that lie beyond its boundaries. I refer, in particular, to Canada's very considerable record of assistance to Third World countries, through the Canadian International Development Agency and other agencies. I refer, too, to the nation's plenary participation in international organizations and forums, from the IMF and the World Bank through to the smallest international non-governmental organizations. And I refer to Canada's post-war immigration policies, which have set an example for developed countries in their openness and civility.

These responses are important not only in and by themselves, but also in what they tell us about our other responses. It seems fair to suggest that when Canada is called upon to respond in ways that do not impinge on its local concerns, or in ways that won't disturb the accepted wisdoms of its history, it will do so with relative ease. It seems fair to suggest, too, that the responses will be more forthcoming when no adjustments are called for in the exercise of powers by the federal government in relation to the provinces or in the system of governance generally.

All of which explains in one simple generalization why Canada's internal responses to global forces have been less impressive than its external ones.

Perhaps the most discouraging feature of this recounting of Canada's record is the number of important policy questions which, for political or federal-provincial reasons, have become taboo. The question of education, for example, as a national issue is scarcely discussed in national political circles: to do so would be to offend provincial governments. The question as to the relative emphasis that should be placed on national as opposed to regional economic growth is similarly taboo: no political party wants to appear to be challenging the principle of regional development. The reform of the social security system, to better facilitate intersectoral and interindustry economic adjustments, seems similarly to have been ruled out: the political cost of challenging the unemployment insurance plan is too high. The spending power of Parliament, which in the past has been used to bring national dimensions and/or priorities to provincial programs, likewise has been removed from the national political agenda by virtue of the unanimous endorsement of the Meech Lake Accord by Canada's three national party leaders. It has been provincial legislatures that have kept the debate alive.

One could speculate as to the roots of this phenomenon of sacrosanct public policies or policy areas: whether they lie in simple politics as in other nations; or in the regionalism that characterizes the country; or the strictures that characterize federal-provincial exchanges; or all three. The important question, however, is not so much this – though it is important – but how to open up for debate in the future all the issues that impinge on the nation's ability to respond to national and international forces. For it is this ability to respond which is central to Canada's future: it will determine whether we will flourish in the face of change, culturally and economically, or whether we will stagnate in the preoccupations of our past.

Some Directions for Change in Canada's Institutions of Governance

There are, it seems to me, four directions in which Canada's governance and system of governance should be changed if the nation is to adapt to the forces we have been talking about.

First, we must find a way of getting international issues and their impact on Canada onto the national political agenda. Ordinarily, Canadians would expect this to be done by the nation's political leaders. But this, in the contemporary context, seems less likely to happen than during earlier watersheds in Canadian policy history. The nation's leaders appear now to be more clearly entrapped by the regional and provincial issues that dominate the agenda and less disposed to take the political risks of trying to superimpose the global imperatives upon them.

We must look, therefore, at least so it seems to me, to the non-governmental and the private sectors to take the lead. As and when they do, they are, or would in all likelihood be, acting in a non-partisan context and would have as their first goal the development of a public awareness of the imperatives of the future. Once this awareness was achieved, so the reasoning would go, the politicians would more likely feel liberated, or even obliged, to address the broader issues.

The question, of course, is how this is to be brought about. For the task is a large and a difficult one.

It calls, first, for a comprehensive and complex policy analysis job – comparable in scale, at the least, to the most major of Canada's past royal commissions. Moreover, it is not a one-time task: the evolution of the global forces and Canada's adjustment to them will be measured in decades, not simply in years. It is a task, too, that calls for the collection of data that simply are not available today: data not only on the global forces themselves and their broad impact on Canada, but data on the interstices of the Canadian economy and society that will tell us, on a micro basis, how industries and their employees are being or will be affected and how they might respond.

The task of broadening Canada's policy agenda calls, secondly, for a sustained and expert approach to informing Canada's community leaders, and the public generally, about the forces at work and the demands they are making on the economy and the society. What is required to accomplish this is a number of forums, including the regular use of the print medium, that reach beyond the preoccupation with events and personalities and conflicts that characterize much of Canada's media today. This is a tall order, as I said in earlier pages, in a nation with two "markets" for information: 19 million English-speaking Canadians, and 6 million French-speaking.

There already exist, of course, quite a few vehicles for the tackling of these jobs of research and analysis and communication. There are the non-governmental institutes and councils, such as the Institute for Research on Public Policy, the Conference Board, and the Niagara Institute; the quasi non-governmental organizations such as the Economic Council; and the interest groups such as Pollution Probe. All of these do very useful work in their chosen areas – sometimes particular policy areas, sometimes particular policy perspectives, sometimes "frontier" work, and sometimes more conventional studies. What is missing from the scene, however, is one large and transcending and prestigious institute or council that commands near-universal public attention and respect, that brings together leading representatives from the private and public (non-partisan public) and non-governmental sectors, that is dedicated to the consideration of Canada's future in the broadest sense and the issues the nation will confront, and that is dedicated to informing the public about those issues.

I am talking about something such as a Governor General's Council: a council of such independence of mind and objectivity of outlook, and possessed of such outstanding qualities of research, analysis, and insight, that it would be worthy of the sponsorship of the highest and most non-partisan officer of the land – the Governor General. The broad outlines of such a council are sketched out in Appendix A.

This is the first direction of change to be considered in Canada's institutions of governance. The second has to do with the capacity of the nation to respond to global forces in public policy terms. There are three sides to this question, as we have seen: the constitutional capacity of the Government of Canada to respond for the nation as a whole; the orientation of federal-provincial conferences and their potential for extending their perspectives from provincial to global matters; and the capacity of the Government of Canada, when called upon, to engage concerted provincial action in the adaptation or adoption of provincial policies to meet national objectives and national priorities.

On the constitutional front, the capacity of the Government of Canada to respond to global forces is, as we have seen, uncertain and unclear. The case for strengthening that capacity, not weakening it, in the kind of world we have been discussing, seems to me to be self-evident. At the very least, the treaty-making power of the national government and its power over national and international trade should be strengthened and made unambiguous. The same applies to the capacity of the Parliament of Canada to require environmentally sound decision making all across the land. To do less than this, in my view, would be to accord a higher priority to the vested interests of current federal-provincial discourse than to the future well-being of the people of the nation as a whole.

On the federal-provincial front, the Conference of First Ministers should, in my judgment, look to the potential for using their conferences as much for the review of the issues the nation confronts and what this demands of provincial policies, as it is used for reviewing provincial issues and grievances and what this demands of federal policies. To the extent this shift were to be made and provincial policies *were* to be adapted to the national imperatives of a global world, the smaller would be the need to increase federal powers, or to increase their exercise, vis-à-vis the provinces. One could, indeed, visualize an entirely different cast to constitutional and federal-provincial relations if the CFM were to play this role and if the premiers were to find themselves able, given their responsibilities to their constituencies, to agree to such adaptations to their laws and their policies.

To the extent this were not to be possible – and it would be understandable if it were not – the Government of Canada would have to be in a position to exercise its constitutional powers to achieve the desired nationwide results. I refer, in particular, to the use by the Government of Canada of its spending power, through which national dimensions and goals may be imported into provincial programs, by provincial legislatures, in return for federal cost-sharing of the programs concerned. Current constitutional proposals, which would weaken this power, should be examined in this light, for the notion that individual provincial governments should be able to receive federal compensation for shared-cost programs, without fully importing into their programs the national dimensions concerned, seems strangely out of accord with the exigencies of a global world.

The third direction for change in Canada's institutions of governance has to do with the "separation" of the private and non-governmental sectors from participation in the consideration of public policy and, consequentially, their "separation" from a sense of responsible engagement in public policy issues.

It is becoming increasingly difficult to believe, in a world that is becoming more and more interdependent, that private sector responses to external economic stimuli and government microeconomic policy (*de facto* or planned) can truly be independent of one another. It similarly is becoming increasingly difficult to believe that social adjustment mechanisms can continue to be developed by the public sector, in response to global economic change, independently of the engagement of the private and non-governmental sectors in the consideration of those mechanisms. The same applies, with even greater clarity and force, to environmental policy and "sustainable growth."

I have already proposed one vehicle for bringing the private, public, and non-governmental sectors together – a council that would engage in the research and analysis and forecasting that is critical to the identification of the policy issues of the future (and even, perhaps, to a clearer understanding of the issues of the present). But this is not "policy making" in the sense of developing and discussing policy options: it is the "pre-policy" stage, to borrow from the new parliamentary vocabulary. Nor *should* a council bearing the Governor General's name venture beyond this "pre-policy" stage – and into the potentially contentious stage of developing policy options: that would be to violate the neutrality of the Office of Governor General.

One is left, therefore, with the question as to how to involve the private and non-governmental sectors in active policy consideration and, indeed, policy development. The puzzle, as we have learned in the past, is how to do this without violating one of the fundamental conventions of responsible government and parliamentary democracy: namely, that government is, and must remain, responsible for every policy decision it takes and for ensuring that a professional public service is in place to provide responsible and innovative policy options for consideration by ministers.

The answer to this puzzle, it seems clear, is the creation of an advisory body to the Prime Minister, involving representatives – the most outstanding representatives – of the nation's private and non-governmental sectors to consider and, on occasion, to develop policy options, and to advise the Prime Minister on those options. The advisory body would be no more than that: the government and the Prime Minister would remain fully responsible for "policymaking," in the amplest sense of the word, and the public service would remain the government's prime source for professional and continuing policy development and advice. Indeed, the public service would, in my plan, provide an elite cadre of officials to assist the Prime Minister's Council. But the private and non-governmental sectors would now be seriously involved in the consideration and development of policy options. The idea of a Prime Minister's Council is sketched out, in somewhat greater detail, in Appendix B.

One could not expect immediate results from the creation of such a council: it will take time for people outside of government and the political process, and outside of the intimately involved advisory bodies, to develop an understanding of – if not necessarily a sympathy for – the complexities and the complexions of policymaking in a parliamentary democracy. And it will take time for people inside government to accustom themselves to yet one more step, and one more institution, in the decision-making process. But that step – of involving the private and nongovernmental sectors in the consideration of policy options – must be taken if we are to develop the social consensus required in an increasingly intricate and competitive world. In fact, it may well be discovered that to do so would, in the longer run, be to shorten, or to "economize" in, the policymaking process – if by policymaking one means not only the development and deciding of policies, but also their realization.

The fourth direction of change to be considered in Canada's governance, and perhaps even the first in order of priority, is to seek out new ways for resolving the nation's regional discontents – that continuing obstacle of turning Canada's attention to global issues. The old ways of attempting to achieve this objective – consisting largely of an elaborate system of conferences between the federal and provincial governments, and an endless search for constitutional and financial measures that would increase provincial powers and provide greater equality of opportunity in the regions – seem not to have worked. The vocabulary of western alienation remains largely unchanged from the first to the second half of the century. The economic and fiscal grievances of the Atlantic provinces seem not to have abated, despite the measures of assistance that have been generated out of federal-provincial conferences. Quebec's insistence on special or national status for its government as the prime prescription for preserving the language and culture of French Canadians in that province remains undiminished, whatever the adjustments in federal-provincial arrangements or in national policies affecting Quebecers.

It isn't that the measures developed in response to the regional discontents have been insignificant: some, indeed, have been quite heroic in their proportions. There is the policy of national bilingualism, now enshrined in the Constitution; the equalization of provincial revenues, also enshrined in the Constitution; the elaboration of regional economic development measures; the empowerment of the provinces to change the configuration of national programs to accord with provincial needs (family allowances); the reduction and sometimes elimination of the conditionality of shared federal-provincial programs; and elaborate consultations with the provinces on national policymaking. But the regional discontents remain, apparently unattenuated.

The question that begs to be asked is whether we have been pursuing the wrong course – or pursuing it beyond the point of diminishing returns. Does an increase in the capacity and the powers of provincial governments, alone, go to the roots of the aspirations and hopes of the people of the regions – to the roots of their apprehensions and grievances, and their thirst for identity and recognition?

The answer, it seems to me, is to be found by reflecting more broadly upon the underlying nature of regional and cultural aspirations. There are several such aspirations. The first – and the most prominent one to be sure – is the preservation and enrichment of the language and culture and heritage of the region. The realization of this aspiration does indeed require the assurance that the regional government has sufficient power to do what can be done within the region to achieve this prime societal objective. To achieve this sufficiency of regional powers is not to preclude action to the same end on the part of the national government: indeed, complementary action on the part of a sympathetic federal government can do a very great deal to create the environment within which the language and culture and heritage of the region may flourish. Canada's national policies of bilingualism and multiculturalism are a clear case in point.

It has to be recognized, on the other side of the coin, that a sufficiency of regional government powers and a supportive national government, while a necessary condition for the preservation of a language and culture, may not be a sufficient condition. Government, to speak of the particular case in point in Canada, namely Quebec, cannot alter the predominantly English-speaking character of North America, or change fundamentally the fertility rate of French Quebecers, or prevent the people of that province from accepting and preparing themselves for larger and richer opportunities outside the province. But it remains that the sufficiency of regional government powers is essential to the realization of cultural and linguistic aspirations.

The question to be asked in Canada is whether this has been achieved. Do the provinces have sufficient constitutional powers to do what can be done, regionally, to preserve the language and culture and heritage of their provinces and regions? The answer, in the face of all the evidence, has got to be yes: the provinces have the power to legislate on language and culture and the preservation of their heritage, as we have seen, and have in addition the spending power to create whatever institutions are required to that end. They have the fiscal capacity, too: provincial revenues are augmented by federal equalization payments to ensure that every province receives per-capita revenues at or very near to the national average.

The first of the aspirations of any region or culture, in short, seems on the face of it to have been met in Canada. If this is so, to continue to look to an increase in provincial powers as the way to protect language and culture can only give rise to increasing frustration. If this is *not* so, then the line of enquiry at constitutional conferences should shift to the determination of specifically what powers the provinces lack – in terms of language and culture and heritage – and away from the endless debate as to the place of the provincial governments *relative to* the federal government.

I would go further and suggest that it is time to look at the other aspirations of Canada's regions – aspirations that are typically to be found in regions and cultures around the world. There are two, it seems to me. The first is that the region or culture be adequately recognized on the wider stage of the nation, or indeed beyond. And the second is that the peoples of the region or culture have a sufficient part and place in the governance of the nation in which they live. Recognition and representation, in short.

It is in the fulfilment of these aspirations that Canada seems most to have failed: for Quebec, the adequate recognition of the province's "distinct society" or cultural identity; and for the western and the Atlantic provinces, the adequate representation of their peoples in the Parliament of Canada.

The "representation aspiration," to deal with that first, lies at the heart of the notion of dual representation in the parliaments of federal nations – representation by population in one assembly and representation by region in another. This was the *form* that was adopted by Canada, but the reality was never there. In the first place, the Senate – the "representation-by-region assembly" – was appointed by the Governor in Council (the Government of Canada), and was therefore not seen by the people of the provinces as being representative of their provinces. Second, the representation from the smaller provinces – the western and Atlantic ones – was so small that they were consigned to the status of a permanent and sometimes insignificant minority in Parliament. It is this powerlessness in the councils of the national government that has lain at the heart of the frustrations of first the Atlantic provinces and then the western ones, as they sought over the years to cope with national policies that seemed to work against their economic interests.

It is not surprising, therefore, that Senate reform should finally have come to the forefront of constitutional discussions. And the demand for Senate reform will, in my judgment, have to be met. The demand being expressed, today, is that the Senate should be elected, that it should be equally representative of all provinces, and that its powers should be undiminished. Whether so radical a reform will be necessary to satisfy the people of the eight smaller provinces that they are effectively represented in the Parliament of Canada may be open to question (I speak in particular of the absolute equality of representation and of the plenitude of powers). But that Senate reform is essential to the resolution of the discontents of the western and Atlantic provinces, I haven't the slightest doubt.

The "recognition aspiration," to turn to the second of the aspirations that lie beyond a sufficiency of regional powers in linguistic and cultural matters, is a subtler and more complicated concept. For what is meant by "recognition" is unclear. Some Quebecers, to come directly to the Canadian case, seek recognition of Quebec as a distinct society *within* the nation of Canada, while others seek recognition of Quebec *as* a nation, but associated in some way or another with Canada. If it is the former which is at stake, the solution is both straightforward and uncontroversial: the recognition of Quebec, in a declaratory section of the Constitution, as a distinct society. If it is the latter which is at stake, then manifestly the answer is different, as we know from the referendum on sovereignty-association.

It is this very ambiguity over the nature of the recognition being sought by Quebec that lies at the heart of the debate over the Meech Lake Accord. If, as I say, the recognition of Quebec as a distinct society had been placed in a declaratory section, no serious questions would have been raised. But to place this recognition in an interpretive clause is to raise the question as to whether the ultimate intent, or consequence, wouldn't be to set the stage for the gradual emergence of Quebec more as a nation associated with Canada, than as a province within the Canadian nation. The very purpose of an interpretive clause, indeed, if it means anything at all, is to call for a special interpretation of the constitutional powers of the Government of Quebec, in the context of the declaration that the province is distinct.

The question to be asked, therefore, is whether under the distinct society clause as it was drafted, the Government of Quebec could in the future pass laws that exceeded the legislative powers otherwise granted to the provinces, on the grounds that the laws were required to protect the distinctness of the society of Quebec. If the answer is yes, then the stage will have been set for a gradual accretion of powers by future governments of Quebec, leading potentially in the direction of a nation within the nation of Canada.

This is the question that must be answered, in seeking to meet the "recognition aspirations" of the province of Quebec. If it transpires that the intent of the Quebec demands went no further than the recognition of the distinctness of their society within Canada, then the issue will have been settled. If, on the other hand, it were to transpire that the intent was indeed to open the way to the evolution of a more independent Quebec, over time, then the question of Quebec's independence from Canada would surely have to be raised and settled. For the nation cannot sustain another 25 years of divisive and enervating debate over Quebec's place in Canada, and over the powers the provinces should have relative to those of the federal government. Canada must get on with its future in the world of the next century. To do less would be to do a grave disservice to all Canadians.

Appendix A

A Governor General's Council

I have proposed in the text that a Governor General's Council should be established for the purpose of examining and analysing and reporting upon, in a quite non-political way, the impact of global forces upon the nation's economy and society, upon the major policy issues Canada is or will be confronting as a consequence of those forces, and upon the adjustments they will bring in their train. The council would *not* develop policy options or policy recommendations, nor would it stray beyond factual and objective reports: to do so would be to do a disservice to the Office of the Governor General. Within these limits, however, the council would be free to determine the range of problems and issues it would examine and analyse and report upon.

The council would be made up of 15 (or so) members, drawn from the private and public (non-partisan public) sectors, and from non-governmental organizations. The members of the council, who would serve on a part-time basis, except perhaps for the chairperson, would be outstanding members of the communities from which they were drawn and would be named or proposed to the Governor General by a nominating panel patterned after the one which nominates persons to be honoured with the Order of Canada. The chairperson would be similarly chosen. The council members would not be "representatives" of the sectors from which they were chosen: they would be drawn from them. Nor would the council members be "representatives" of the regions from which they happened to come: it would be inappropriate to appear to be replacing the bodies that are officially charged with representing the regions of Canada in the policymaking processes (Parliament and the Conference of First Ministers). Care would be taken to ensure that all three sectors – the private, the public, and the non-governmental – were appropriately represented. Practising or "recognized" political persons would not be eligible for membership on the council, for the evident reason, once again, that any body graced with the Governor General's name would have to be clearly seen as non-political.

The council would be served by a body of outstanding "public servants" – using that term in its broadest sense – seconded from their parent organizations for defined terms. They would be supported by appropriate professional and technical and administrative personnel.

The Governor General's Council would *not* replace organizations such as the Economic Council or the Institute for Research on Public Policy. These bodies, and many more, are needed to add yeast and insight and understanding to the policy-analysis field.

Appendix B

A Prime Minister's Council

The second council suggested in the text is a Prime Minister's Council, which would serve as a vehicle for providing independent and non-partisan advice to the Prime Minister from the private sector and from non-governmental organizations. As the Governor General's Council, it would examine longer-term policy issues, but in this case with a view to considering and on occasion developing policy options for the Prime Minister, and discussing those options with the Prime Minister. The difference between this council and the Governor General's Council, in terms of its locus in the policy-development spectrum, is essentially that the former would take over where the latter left off. The second difference between the Governor General's Council and the Prime Minister's, is that the latter, being a policy advisory body from outside government, would not include public-sector representatives.

The Prime Minister's Council, as the Governor General's Council, would be made up of blue-ribbon members of the sectors represented – in this case the private and non-governmental sectors – and the same principles about (not) "representing" regional or sectoral affiliations would apply. The Prime Minister's Council would be chosen differently, of course: the members would be appointed by the Governor in Council on the advice of the Prime Minister of Canada.

The Prime Minister's Council would be served by a small body of outstanding public servants, seconded from the Public Service of Canada, but the council would not be a substitute for the public service in advising the Prime Minister. Its purpose, to repeat, would be to provide advice and policy counsel from the perspective of the private and non-governmental sectors. That the advice may "compete" with that given by individual ministries is self-evident: however, the advice would not be a substitute for the continuing and direct advice governments must have from a permanent and professional public service.

These suggestions for a Governor General's and a Prime Minister's Council are not intended as finished and detailed proposals: their purpose is simply to open up possibilities for including the private and non-governmental sectors in the policy-development process.

Commentary by Ian Macdonald

Late last Friday afternoon, I was somewhat ill at ease because the courier bringing Al Johnson's paper to Toronto got lost; I was wondering when and how I would find time to do justice to his paper before this afternoon. Of course, I realized yesterday that my apprehension was misplaced because, in fact, discussants normally give full range to their own ideas, regardless of the paper. I expect that it will be no different this afternoon. It is also comforting, as a result of the last day and a half, to be reminded that, as far as core issues are concerned, there really is nothing new under the sun. From Plato's *Republic* to John Stewart Mill's *Principles of Political Economy*, to J. K. Galbraith's *The Affluent Society*, the dilemmas and choices have a familiar ring. However, even though the problems continue, we must deal with them in the special context or environment in which they arise. Those of you who have had a chance to read Al Johnson's paper will agree that it is a characteristically lucid and comprehensive diagnosis of that context and environment; indeed, there is nothing there to which I can take exception, except for the occasional Ottawa-centric view of Confederation. He is also to be congratulated for going much further than many of the papers prepared for this conference, by providing prescriptions as well as diagnosis. However, I tend to disagree with a lot of his prescription, and I would like to propose a somewhat different emphasis.

The issues of so-called globalization are large and pervasive, and if you agree with Mr. Suzuki, they are potentially apocalyptic, but looking back at the history of starvation, the history of slavery, and at recurrent wars, perhaps no more epic and often less mindless. The military historian, John Keegan, in his most recent book, *The Mask of Command*, discusses the battle of Waterloo and describes how "40,000 soldiers and several thousand horses had been killed in the preceding ten hours and their bodies lay in an area of ground not much more than a mile square." Well, presumably that could not happen today – the animal rights activists would not permit it! In contrast, how much did the public spend to save three gray whales?

Al Johnson has suggested some new institutions as a means of providing a higher order of decision making. And the problem he addresses is real because, normally, in a democracy, people are most concerned with immediate and local issues that bear on them personally. However, the problems of global interaction and global management require a much wider perspective; therefore, the problem is how do you find a way to convince voters in a democracy that those issues are also personal and local because only then, in a world of poll-taking and careful reading of voter preferences, will leaders of government also make real progress in addressing those issues. How then can we convince people that global issues are relevant to them? How can governments, in a democracy, be assured of a sufficient base of understanding to provide effective leadership? But on that point I believe we can be encouraged, certainly, by the results of the recent political exercise in Canada. The electorate indicated that it was prepared, after all, to take a large leap of faith, and it is no more than that, notwithstanding the degree of obfuscation on both sides of the argument.

Now, we are going to face similar large issues that will test our capacity to respond. Mr. Maynes spoke yesterday of the potential for Mexican immigration to the United States, and we had another reference this afternoon to that subject. I believe that we will be under pressure to take numbers of immigrants into Canada as never before imagined. How will we respond and how will we handle consequent requirements for human settlement? Second, we need to move quickly from the resource base to the knowledge base, but will we do it quickly enough? Third, we need to train, and quickly, a whole generation capable of conducting international business. Can we marshall those forces? And fourth, we need to deal at once with the excesses of urban life in our major cities. How will that be done? All of those things will be done, I would suggest, only by ensuring a much better understanding of the importance of those issues by the public at large in their internal personal lives. And I agree with Mr. Clark's comments yesterday that television has a great capacity to make global issues into local issues, certainly as far as space is concerned, although it is more difficult with time. And so, on that basis, I believe we should be working not at making new institutions but at making our present institutions more effective in responding to those questions.

First, let us work at making Parliament and the legislatures to be seen as serious bodies. Each of my five children was taken on school trips for a visit to the Ontario Legislature. I am sorry to report this with Stuart Smith in the audience, but each was lost forever to the view that politics could be taken seriously. Buffoonery, disregard for opponents, casual attention, sound and fury in the place of reason – that was their observation. I am not saying that is the whole story; indeed, as a former civil servant of Ontario, I saw it from the other side. What I am saying is that's what they saw, that's what they believe, and that's what they carry with them continuously to this day.

Second, let us unburden ourselves from our current preoccupation with so-called conflict of interest. As one eminent political scientist commented recently, we are reaching the point where anyone who has any degree of expertise on a subject will be disqualified from government by reason of conflict of interest.

Third, in the area of education, I would say: "Let the federal government be more courageous in providing leadership, difficult as that might be." In a conference similar to this one a number of years ago, I suggested that education was a provincial responsibility, the sentiment we hear on every such occasion. I was descended upon with the full fire of Alexander Corry who scolded me. "Absolutely not true," he said. Nor do I believe that was simply because he was principal of a university with a non-provincial charter. The federal government *has* provided leadership in the past and it can again, but it has tried to conceal its responsibility within the fuzzy mandate of the Secretary of State. The current fiscal arrangement process (I am pleased to say devised after my own time as Deputy Treasurer of Ontario) was a dreadful mistake and resulted in the federal government's good intentions for education being unrealized. Consequently, during the 10 years that I was President of York University from 1974 to 1984, the increase in income of the university in each of those 10 years was less by far than the rate of inflation. Yet, over the period 1978-84, our undergraduate enrolment increased by no less than 40 per cent. The consequences of that are well known to all of us. Of course we do not want boondoggles, in Tom Courchene's phrase yesterday, but the federal government should insist, at the very least, that funds intended for higher education find their way there.

Fourth, I believe that federal-provincial first ministers' conferences conducted in the open can become more effective in addressing global issues and providing Canada's response. I recall one day in 1966, about this time of the year, writing a memo to the then Premier of Ontario and suggesting that, in 1967, the Prime Minister and premiers might come together for a so-called "Confederation of Tomorrow Conference" to discuss how a federal state such as Canada might deal with global issues of immigration, environment, trade and commerce, and foreign investment – all of which have a great impact internally. We did not succeed in accomplishing that broader agenda, but neither did we succumb in the agenda to the narrower, parochial issues of fiscal arrangements and constitutional reform. Why not insist that the Conference of First Ministers, once a year or once every second year or from time to time, address the global issues?

Fifth, on the subject of the advisory bodies that Al Johnson has proposed, I have to tell you that I am not enthusiastic about the new council he has suggested, at least in the role of advisors to government. Perhaps I have been involved in far too many task forces, commissions, committees, but my impression is that politicians too often listen but do not hear. In any event, the bureaucracy, fearful of the competition of ideas, would do them in every time. Moreover, I recall that although governments accept the advice from time to time, they do not always persevere. For example, I once had responsibility for producing a document in the early 1970s called "The Toronto Centred Region Plan." The Ontario government actually accepted it, but it also allowed it to wither on the vine. Now not one day goes by, in Toronto, for reasons of traffic congestion, for reasons of over-density of building, for reasons of crime in the streets, or urban pollution, when I do not lament the lack of implementation of that plan. Everyone acknowledges it now, but it is a case of too little and too late. Where such bodies can be effective, I believe, is in research and in public education consistent with my view that a better-informed public will produce, indeed will compel, better political leadership. And as a postscript on planning, I think it was Kierkegaard who once remarked that "life could only be understood backwards, but it must be lived forwards." We cannot plan the future, but we can do our best to do two things: 1) to educate the public; and 2) to strengthen, in every conceivable way, the established democratic institutions, as a means of providing more-effective economic decision making in the year 2000 and beyond. That is where I am prepared to put my effort, in any event, and that is the direction in which we should be headed.

Sixth, I would like to deviate from my general principle and see a forum created whereby scientist and economist come together to confront the issues of growth. Others have suggested this in the last two days for the purpose of reconciling our traditional economic objectives with our environmental realities.

Seventh, on the subject of the Supreme Court and the Senate, which Mr. Johnson also discusses, I do not want to see an unelected body, the Supreme Court of Canada, any more significant than it is today. In fact, as a result of the Charter of Rights, its prominence would appear to be growing markedly. It is amazing to note, once again today, that the Supreme Court has been on the front pages of the newspapers more often in the last three years than in all of its previous history, or so it would seem. Democracy is too important to be left to Supreme Court judges. And I once chaired a committee in Ontario that recommended that the Senate become a House of the Provinces. I still believe that, but I now go further and agree with Al Johnson that it has to be elected. Certainly, it should not be allowed to continue as it is, as a so-called "place of taskless thanks," so to speak.

Eighth, and finally, let me comment on the suggestion for revised ministerial and departmental structure which Al Johnson has put forward. It is interesting, but I caution that, in Ontario, we proposed a similar procedure in 1969-71 when I was a member of the Ontario government's Committee on Government Productivity. It did not work that well because of the detachment of the policy ministers from operating responsibility, and hence their concern that they had no way of maintaining a public profile by doing things. It is possible that by making one ministry the lead ministry rather than a detached separate secretariat, led by a policy minister, such a problem could be avoided. But then you would have to ask the question: "In what way does it differ from a Cabinet committee?" However, I certainly would like to look at this idea and consider it in greater detail with Al Johnson.

12 Economic Policy and Economic Science: The Case of Macroeconomics

Alan S. Blinder

From its inception, economic theory was closely tied to public policy concerns. Smith, Ricardo, Marshall, and Keynes – all had their minds on concrete policy issues as they spun abstract theories. Keynes, describing Marshall, wrote that a master economist had to be "as aloof and incorruptible as an artist, yet sometimes as near the earth as a politician" [Keynes, 1951, p. 141].

Few people nowadays find academic economists nearly as close to the earth as that. Many, however, find them aloof. The gulf between economic theory and economic policy today is wide – much wider than when I began studying economics in the 1960s. Correspondingly, the formerly symbiotic relationship between economic scholars and economic policymakers has given way to a blend of one part tension and two parts detachment seasoned with a dab of mutual disdain. Policymakers find contemporary economic research far removed from the world they know and hence of little use. Academics find policymakers frustratingly short-sighted and politically motivated, more interested in looking good than doing good.

While the same theme could be developed in other contexts, this paper focuses on macroeconomics. It relates the deteriorating relationship between academics and practitioners to events of the 1970s and, more particularly, to changes in macroeconomic theory that occurred at the same time. Specifically, I argue that the replacement of Keynesian economics by new classical economics at the cutting edge of scholarship helped erect walls between economists and policymakers, and that these walls have done neither side any good. Politicians rightly complain that academic economics has grown excessively insular and distant. Scholars rightly complain that politics have systematically rejected sound economics in favour of mindless sloganeering. The quality of public policy has suffered on both counts.

This grim assessment of recent political and intellectual history leads, however, to a somewhat optimistic conclusion. The current resurgence of Keynesian economics in academia may foreshadow a more cooperative working relationship between scholars and policymakers in the future, because Keynesian economics has traditionally been closer to the earth and to policy than has new classical economics – and not by coincidence. Recent developments in Keynesian theory are, to be sure, at least once removed from reality. They are more like theoretical physics than engineering. But the new wave of theories takes seriously such real-world phenomena as involuntary unemployment, sticky prices, and wage rigidities, and is clearly motivated by a desire to bridge the gap between theory and reality. The engineering will come later.

To make the case that Keynesian economics is inherently more closely tied to policy than new classical economics, I must begin by defining Keynesian economics precisely. This I do in the section entitled "What It Means to Be a Keynesian." The following section deals briefly with intellectual history – with the reasons why Keynesian economics fell from grace and why it is now being rehabilitated. With this as background, the fourth section turns directly to the uneasy relationship between economics and politics – to the supply of and demand for policy advice, if you will. The final section is a brief conclusion.

What It Means to Be a Keynesian

The word "Keynesian" means many things to many people. Decades ago, it was a label carelessly applied to economic liberals and interventionists in general. For a while in the late 1970s and early 1980s, it became a pejorative term more or less synonymous with old-fashioned. No two people have precisely the same definition of Keynesian economics. But, as one of the few American economists of my generation who never shunned the label, I feel entitled to my own definition. To me, the heart of Keynesianism consists of six principal tenets.

First and foremost, Keynesian economics is a theory of aggregate demand and of the effects of aggregate demand on real output and inflation. The first three tenets follow from this.

1 A Keynesian believes that aggregate demand is influenced by a host of economic decisions, both private and

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I am grateful to Ben Bernanke, John Campbell, Andrew Caplin, Stephen Goldfeld, John Seater, Steven Sheffrin, and Bob Trevor for helpful comments on an earlier draft.

public, and sometimes behaves erratically. Some decades ago, there were active, impassioned debates over the propositions that (a) monetary policy is powerless because the demand for money responds so strongly to interest rates; or (b) fiscal policy is powerless because the demand for money responds so weakly to interest rates. But both of these are dead issues now. *Essentially, all Keynesians and most monetarists now believe that both fiscal and monetary policies affect aggregate demand.*[1] Many new classical economists, however, believe in debt neutrality – the doctrine that substitutions of debt for taxes have no effects on total demand.

2 *According to Keynesian theory, changes in aggregate demand, whether anticipated or unanticipated, have their greatest short-run impact on real output and employment, not on prices*, and the short run lasts long enough to matter.[2] In textbook expositions, this idea is conveyed by a short-run aggregate supply curve that is upward-sloping and probably quite flat except at high levels of capacity utilization, so that changes in aggregate demand are normally not dissipated in higher prices. In macroeconometric models, the same idea is captured by treating output and employment as demand-determined in the short run and letting an inertial Phillips curve determine inflation.

For a theoretical model to produce real effects from anticipated monetary policy, it is usually necessary to have a nominal rigidity in the model; otherwise, an injection of money is like a currency reform which changes all prices equiproportionately.[3] So Keynesian models generally either assume or try to rationalize nominal rigidities. Because supply and demand curves derived from standard neoclassical maximizing principles are always invariant to changes in units, this is not an easy task. Real effects of government purchases, however, are readily explained on strictly neoclassical grounds [Barro, 1981*b*].

Since prices do not absorb all shocks to demand, fluctuations in any component of demand will cause sympathetic movements in output. In most Keynesian models, the latter are larger than the former because of the multiplier; but a multiplier greater than one is not central to Keynesian analysis. A positive real multiplier is.

Although real effects from demand fluctuations are often called "Keynesian," most monetarists accept the idea as well – at least as it pertains to monetary policy. So this tenet does not really divide those two schools of thought. However, at least some new classicals insist that changes in money affect real output only if they are unanticipated.

3 *Keynesians believe that goods markets and, especially, labour markets respond only sluggishly to shocks; i.e., that prices and wages do not move quickly to clear markets.* This issue, once again, divides Keynesians more from new classicals than from monetarists – although monetarists probably place more faith in the economy's natural servomechanism than Keynesians do. Milton Friedman [1968, p. 13], for example, has written that "Under any conceivable institutional arrangements, and certainly those that now prevail in the United States, there is only a limited amount of flexibility in prices and wages." In current parlance, that would be called a "Keynesian" position.

The next three tenets have to do directly with policy; and here Friedman and other monetarists part company with most Keynesians.

4 To a Keynesian, the actual levels of employment and unemployment have no special claim to optimality – partly because unemployment is subject to the caprice of aggregate demand, and partly because they believe that markets clear only gradually. In fact, *Keynesians typically see unemployment as both too high on average and too variable.* And they feel certain that periods of recession or depression are economic *maladies*, not optimal responses to unattractive technological opportunities. All this is summarized in the term "involuntary unemployment," a phenomenon which Keynesians deplore, even though it has proven notoriously difficult to define.[4] On this tenet, new classicals differ sharply from Keynesians, with monetarists somewhere in between.

5 *Many, but not all, Keynesians advocate activist stabilization policy to reduce the amplitude of business cycles*, which they rank among the most important of all economic problems. Here monetarists generally join new classicals, as well as some conservative Keynesians, in doubting both the efficacy of stabilization policy and the wisdom of attempting it. Some new classicals go even further and question whether business cycles are a serious problem at all.[5]

The argument that economic knowledge is not secure enough to support what used to be called fine tuning is by now widely accepted, even by most Keynesians. Yet many Keynesians believe that more modest goals for stabilization policy – coarse tuning, if you will – are not only defensible but sensible. For example, an economist need not have detailed quantitative knowledge of lag structures to prescribe a dose of expansionary monetary policy when the unemployment rate is 10 per cent – as it was in Canada and the United States not so long ago. Furthermore, and this may be the most important point, the nature of government seems to abhor a vacuum of economic advice. If economists with admittedly limited knowledge refuse to offer their expert (if uncertain) counsel, assorted quacks with no knowledge at all will not hesitate to rush in.

6 Finally, and even less unanimously, *many Keynesians are more concerned about combatting unemployment than about conquering inflation.*[6] However, there are plenty of anti-inflation Keynesians; most of the world's current and past central bankers, for example, merit this title whether they like it or not. Needless to say, relative attitudes towards unemployment and inflation heavily influence the policy advice that economists give and that policymakers accept. As a broad generalization, I think it is safe to say that Keynesians are typically more aggressive about expanding aggregate demand than are non-Keynesians.

My six tenets divide naturally into two equal groups: the first three are assertions about *positive* economics, that is, about how the economy works; while the last three are mostly *normative*, that is, about the proper conduct of policy. The division of Keynesian economics into positive and normative components is central to understanding both the academic debate and its relevance to the use of economic analysis in policymaking.

Positive Keynesianism is a matter of scientific judgment and is almost mum about policy. A positive Keynesian believes that both monetary and fiscal policies can change aggregate demand, that fluctuations in aggregate demand have real effects, and that prices and wages do not move rapidly to clear markets. No policy prescriptions follow from these beliefs alone. And, as I have indicated, many economists who do not call themselves Keynesians nevertheless accept the entire list.

Normative Keynesians add both value judgments and political judgments to the preceding list. A normative Keynesian believes that government should use its leverage over aggregate demand to reduce the amplitude of business cycles. He or she is probably also far more interested in filling in cyclical troughs than in shaving off peaks. These normative propositions are based on judgments that: (a) macroeconomic fluctuations significantly reduce social welfare; (b) the government is knowledgeable and capable enough to improve upon free-market outcomes; and (c) unemployment is a more important problem than inflation.[7]

The long, and to some extent continuing, battle between Keynesians and monetarists has been fought primarily over the normative issues – particularly (b) and (c).[8] Thus, by my definitions, most monetarists are positive Keynesians but not normative Keynesians. So are other non-monetarist conservatives who shun the label Keynesian – such as Martin Feldstein and Herbert Stein. Protagonists in these debates agree on most positive issues but make different value judgments and seat-of-the-pants political judgments, and so reach different conclusions about policy. Their disagreements in many ways mirror disagreements among policymakers; so the debate is highly relevant to policy.

The briefer, but more intense, debate between Keynesians and new classicals has, by contrast, been fought primarily over the tenets of *positive* Keynesianism. New classicals argue that anticipated changes in money do not affect real output; that markets, including the labour market, clear quickly by price;[9] and that business cycles may be the price system's optimal response to changing technological opportunities. Here "objective" scientific evidence can be brought to bear;[10] and, in my judgment, the evidence on all three issues points strongly in the Keynesian direction. But rather than try to summarize that evidence now, I only want to make two points. The first is that arguments over the positive aspects of Keynesian economics are potentially resolvable by the accumulation of scientific evidence in a way that disputes over normative issues are not. The second is that debates over whether anticipated money matters, whether markets clear, and whether recessions are a bad thing will naturally – and, in my view, properly – seem remote from the concerns of policymakers, who (rightly or wrongly) are pretty sure they know the answers to all three questions.

Before leaving the realm of definition, let me underscore several glaring and intentional omissions.

First, I have said nothing about *rational expectations*. Many Keynesians are doubtful about the validity of rational expectations as a behavioural hypothesis, as was Keynes himself [Blinder, 1987*b* and Lovell, 1986]. Others are willing to accept it. But, when it comes to the large issues with which I have concerned myself so far, nothing much rides on whether or not expectations are rational. In particular, rational expectations models with sticky prices – as those of Fischer [1977] and Taylor [1980], for example – are thoroughly Keynesian by my definition. Details of model construction and quantitative answers to specific questions do, of course, depend on how expectations are modelled. And, for some issues, the expectational mechanism is crucial.[11] But, for the most part, these are not central to the debate between new classical and Keynesian economists.[12]

The second omission is the natural rate hypothesis. Pre-1970 Keynesianism included a Phillips curve that was negatively sloped even in the long run, implying that there was a permanent trade-off between inflation and unemployment. This idea was rejected theoretically by Friedman [1968], a monetarist, and Phelps [1968], a Keynesian, and shortly thereafter was also rejected in econometric studies by Keynesians such as Gordon [1972]. Since about 1972, a Phillips curve with no trade-off in the long run has been an integral part of Keynesian economics. So the natural rate hypothesis played essentially no role in the intellectual ferment of the 1972-85 period. Ironically, however, questions about its validity are now playing a role in the Keynesian renaissance.

Third, I have ignored the choice between monetary and fiscal policy as the preferred instrument of stabilization policy. People differ along this dimension and occasionally change sides. By my definition, however, it is perfectly possible to be a Keynesian and still believe either that responsibility for stabilization policy should, in principle, be ceded to the monetary authority or that it is in practice so ceded.

Recent Doctrinal Disputes in Macroeconomics

Around, say, 1972, Keynesianism was undoubtedly the dominant doctrine in macroeconomics, both within academia and without, both in the United States and elsewhere. Even though its micro-theoretic foundations were widely recognized to be weak, the empirical implications of Keynesian economics were believed to be more or less correct. By about 1980, however, precious few American academic macroeconomists under the age of 40 still called themselves Keynesians. That is an astonishing intellectual turnabout in a mere eight years.

A scientist from another discipline might naturally surmise that the data of the 1970s had delivered a stunning and unequivocal rejection of the Keynesian paradigm. He would look for some decisive observation or experiment that did to Keynes what the bending of light did to Newton. But he would look in vain. In contrast, the events of the 1970s and 1980s are consistent with a Keynesian framework augmented to include supply shocks, while much of the evidence is at best hostile to and at worst contradictory of the new classical paradigm [Blinder 1979 and 1987*a*, Chapter 3]. The ascendancy of new classicism in academia was a triumph of a priori theorizing over empiricism, of intellectual aesthetics over observation, and, in some measure, of conservative ideology over liberalism.

Let me first dispose of the view that the demise of Keynesian economics was due to the doctrine's poor empirical performance. Talking about the Phillips curve in the United States, Lucas [1981, p. 559] wrote that "Keynesian orthodoxy *is* in deep trouble, the deepest kind of trouble in which an applied body of theory can find itself: It appears to be giving seriously wrong answers to the most basic questions of macroeconomic policy."

It is, of course, true that pre-1972 Phillips curves were ill-equipped to handle the food and energy shocks that dominated the period 1972-81 and, in consequence, underestimated inflation. But it is also true that Keynesians quickly added supply-side variables (such as oil or import prices) to what had up to then been an entirely demand-oriented theory.[13] Soon, thereafter, supply shocks were also appended to empirical Phillips curves [Gordon, 1977]. By the early 1980s, numerous studies had documented the fact that a conventional Phillips-curve equation with a supply-shock variable (any one of several will do) fits the U.S. data of the 1970s and 1980s extremely well.[14]

If you do not trust or cannot read econometrics, the following back-of-the-envelope calculation should help drive home the point. Keynesian economists in the 1960s and early 1970s developed what I used to call the "Brookings Rule of Thumb": that each point-year of unemployment above the natural rate reduces the rate of inflation by 0.4-0.5 of a percentage point. Using a 5.4-per-cent natural rate, the United States experienced about 16 point-years of extra unemployment between 1980 and 1985 and, during those years, the inflation rate declined about 6-7 percentage points. Once you see how well the rule of thumb worked, you understand why conventional Phillips curves fit data from the 1980s so well.

Why, then, was the alleged demise of the Phillips curve trumpeted so loudly and so widely? I think the reason was the conjunction of two events – one historical, the other intellectual.

First, when supply shocks came to dominate the data in the 1970s, the familiar negative correlation between inflation and unemployment disappeared. The Phillips curve could no longer be depicted in two dimensions. To those too unsophisticated to distinguish between a simple correlation and a multivariate relationship, that seemed equivalent to the death of the Phillips curve.

Second, Lucas' [1976] insightful critique of econometric policy evaluation provided an elegant a priori argument for why an empirical Phillips curve might collapse under the weight of a more inflationary policy.[15] Academic readers of Lucas put two and two together and jumped like lemmings to the wrong conclusion. The facts were that (a) inflation had risen, and (b) the correlation between inflation and unemployment had changed. The (untested) assertion was that (b) followed from (a): the Phillips curve had shifted because the government had adopted a more inflationary policy. In fact, however, supply shocks provide a more parsimonious explanation for both the rise of inflation and the fall of the Phillips curve – and one that can be substantiated empirically.[16] Yet academic economists, at least American academic economists, opted *en masse* for Lucas' explanation, deserting Keynesianism in the process. Why? The answers are rooted in the sociology of science, in attachment to theory, and in ideology – not in empiricism. I take up the three factors in turn.

The Sociology of Economics

Many people have observed that economics has become a highly technical subject in recent decades, more so in the United States than elsewhere. And technicians, of whatever discipline, prize technique; it is how the young cut their teeth. The rational expectations revolution was a godsend for aspiring young technicians. It not only pushed macroeconomic theory into more abstract and mathematical directions, but brought in its wake a new style of econometrics that was far more technically demanding than the old methods it sought to replace.[17]

The tools needed to carry out the new brands of theory and econometrics could not be found in the kit-bags of the older economists, which gave the young a heavy competitive edge. Not only were they better-trained mathematically and, being younger, more flexible of mind; but they were also less distracted by other pursuits and hence more willing and able to absorb the new techniques. As an extra bonanza, the Lucas critique provided a reason to shun the previously accumulated stock of econometric results as unreliable. Traditional Keynesian tools such as IS/LM and large-scale macroeconometric counterparts came to be viewed as relics of the past and, in a strange kind of guilt by association, Keynesian ideas as those discussed in the section "What It Means to Be a Keynesian," also came to be seen as outmoded. By 1980 or so, the adage "there are no Keynesians under the age of 40" was part of the folklore of the (American) economics profession.

The saying, of course, was meant to encompass only *academic* economists and, indeed, only those in the elite institutions. The fact that virtually no non-academic economists converted to new classicism was irrelevant to the academic head counters. Obviously, the sharp bifurcation between professors on the one hand and business and government economists on the other is highly germane to the subject of this paper. In part, the insular attitude of the academics was normal, inevitable, and proper. It is in the nature of their respective roles that scholars should be the producers of new ideas while practitioners should be the consumers. Fundamental debates over theory and statistical method belong in the academy, where the protagonists are better- equipped to deal with them and have the luxury of a long-time horizon. That, I suppose, is what ivory towers are for. We expect innovations in both theory and method to travel from academia to the halls of policy, not vice versa.

But another part of the explanation lies in the different market tests the two groups must meet. In academia, as in fashion, it is often more important to be fresh and creative than to be correct. Cute models, after all, make snappy papers; the real world can be left to less original minds. I have heard it said that the surest route to academic success is to devise a clever proof of an absurd proposition. And dazzling displays of technical fireworks, perhaps accompanied by some impenetrable prose, regularly impress referees and editors of scholarly journals.

Incentives are quite different in government, where the important things are to produce the right answer – or, rather, to *appear* to produce the right answer – and not to stick your neck out. Methodological innovation and purity count for little, theoretical cuteness for nothing, and technical virtuosity is not always appreciated. A professional forecaster seeks accuracy, not scholarly kudos. A policy analyst wants to communicate with policymakers, not to dazzle them with technique.

That new classical ideas failed to migrate from the academy to the worlds of business and government – as Keynesian ideas had done 40 years earlier – suggests that they failed to meet the non-academic market test: they did not produce useful results. But that is getting ahead of my story.

The Nature of Economic Theory

The triumph of new classical ideas in academia was also rooted in the nature of economic theory and in economists' fierce loyalty to it. We economists proudly distinguish ourselves from the lower social sciences by pointing to our illustrious theoretical heritage. In the economists' world, rational and self-interested people optimize subject to constraints. The resulting decisions lead to supplies and demands which interact in markets to determine prices. These prices, in turn, guide the allocation of resources and the distribution of income. If not interfered with, markets tend to be highly competitive and have a strong tendency to clear by price. (Here the consensus begins to fray.)

These are the canons of our faith. They are what gives economics the unity and cohesion that other social sciences lack. Rightly or wrongly, they also imbue economists with an imperialistic attitude towards the other social sciences – rather as Kipling's attitude towards India. We, the possessors of a tight theoretical structure, should treat the heathen kindly, if condescendingly, while firmly propagating the faith.

Notice, however, that the central economic paradigm is entirely *microeconomic*. Keynesian macroeconomics co-exists with it uneasily at best. In at least some Keynesian models, workers are less than rational. (For example, they may have trouble distinguishing between changes in nominal and real wages.) Relative wages and notions of fairness probably matter in labour markets. Decision makers frequently bump into corners, where optimal decisions are no longer described by neoclassical marginal conditions. Markets may not clear, and, in fact, may display surpluses for long periods of time. In all these respects and others, Keynesians have long been infidels in the neoclassical temple.

The strength of neoclassical fundamentalism has ebbed and flowed over the decades. The worldwide depression of the 1920s and 1930s undermined it severely, thus paving the way for the Keynesian revolution. The prosperity of the 1960s and early 1970s probably helped to restore it. New classical economics was quite explicitly a revival of neoclassical orthodoxy, a return to what Lucas [1987], echoing Marshall, called "the only engine for the discovery of truth."

Methodological purity has a seductive attraction to mathematically minded technicians – which helps to explain why rational expectations came to be so intimately tied up in the debate. Modelling expectations as rational – i.e., as optimal given the information at hand – is the analogue of modelling consumers as maximizing utility and producers as maximizing profits. Rational expectations were therefore a natural accompaniment – and, indeed, a major impetus – to the "back-to-basics" movement. It was no accident, then, that those who favoured frictionless, optimizing, market-clearing models were immediately attracted to rational expectations as a behavioural hypothesis without bothering to look for evidence. Linking rational expectations to new classicism (thus leaving "irrational" expectations to the Keynesians) helped the new theory to win converts in exactly the same way that celebrity endorsements help to sell products. Theoretically minded economists were predisposed to believe in rational expectations and, at first, took the new classical baggage along with it.

The Role of Conservative Ideology

There were also ideological overtones in the neoclassical revival which I have yet to mention, but which played an important subsidiary role.

The basic neoclassical paradigm is profoundly conservative. Those who take it seriously as a description of the economy tend towards the Panglossian view of private economic transactions and look askance at government intervention. When this world view is transported from microeconomics to macroeconomics, it leads to theoretical models in which business cycles are benign, unimportant, or inevitable – perhaps all three. And it leads, as usual, to laissez-faire policy recommendations. For example, Prescott [1986, p. 31] asserts that "costly efforts at stabilization are likely to be counter-productive" because the free-market business cycle is the best that can be done.

Keynesians, as I indicated in the section "What It Means to Be a Keynesian," do not buy any of this. They argue that the very existence of macroeconomics as a subdiscipline owes to the massive market failures that we observe during recessions but which the neoclassical paradigm rules out. They believe that recessions are important, malign, and curable, and so are ready to support government interventions designed to stabilize aggregate economic activity.

The relative strengths of conservative and liberal ideologies obviously vary both through time and space. My argument is that new classical theory could have attracted a large following only in a country and at a time when right-wing ideology was on the ascendancy, as was true in the United States in the 1970s and 1980s.[18] Though we academics live in ivory towers, the social winds blow there, too.

Many observers have noticed that the new classical revolution was mainly restricted to the United States; it never really caught on in Europe. That was no coincidence, I think, for laissez-faire ideology has long found more adherents in the United States than in Europe. The timing was also no accident; new classicism took root just when the political balance in America was shifting towards the right. I do not believe such ideas would have sold in American academia during the 1960s.

What I have just said about the theoretical and ideological roots of new classical economics could equally well have been said about old classical economics. But the 1970s did not witness a revival of Pigou, nor even of Friedman. It saw, instead, a movement towards the high-tech economic theory of Lucas and the high-tech econometrics of Sargent. The secret to the success of the new classical economics is that it managed to be at once ideologically backward-looking and technologically forward-looking. Given the temper of the times, that was a winning formula.

Or, rather, it was a winning formula in academia. Outside the academy, the emphasis on theoretical purity (at the possible expense of empirical validity) and technical wizardry were liabilities, not assets. The right-wing political orientation of new classical economists was, of course, an advantage in "Reaganite" America, "Thatcherite" Britain, and elsewhere. That made some members of the Reagan team favourably disposed towards new classicism.[19] But the new theory was far too technical to be understood and far too removed from reality to be used by policymakers. In addition, the leaders of the new school, particularly Lucas and Sargent, were disinclined to press their views on policymakers, viewing the state of knowledge as insufficient to support policy advice. Finally, as we shall see next, the empirical implications of new classical theory were wide of the mark. For all these reasons, the theory that swept academia made hardly a ripple in the world of policy.

That left the relationship between economic theory and economic policy in a kind of limbo from which it has yet to recover. The old theory was allegedly discredited, or so policymakers had been led to believe. But the policy implications of the new theory were either non-existent or an affront to common sense.[20]

Empirical Evidence

In view of the normally strong interplay between events and ideas, it is somewhat astounding that new classical economics caught on during the second half of the 1970s – a time when most of the world's industrial economies were struggling to emerge, often unsuccessfully, from deep and long recessions.

True to its classical roots, new classical theory emphasized the ability of a competitive price-auction economy to cure recessions by wage-price deflation. Its early forms attributed downturns to misperceptions about relative prices (such as real wages) that arise when people do not know the current price level, and implied that unemployment should vibrate randomly around its natural rate. But such misperceptions surely cannot be large in societies in which price indexes are published monthly and the typical monthly inflation rate is under 1 per cent; and they cannot be persistent if expectations are rational. Yet economic fluctuations in the late 1970s and 1980s were both large and persistent.

Later versions of new classical theory abandoned the misperceptions model, replacing it with the notion that monetary policy affects production by altering the relationships between current prices and those expected to prevail in the future. For example, if an increase in the money supply raises today's price relative to that expected tomorrow, it makes it profitable for firms to produce more today and less tomorrow. These second-generation models also added features which produced persistent movements in employment and output.[21] But empirical research has never been able to find evidence that either production or labour-supply decisions are highly sensitive to prices or wages in adjacent periods. And theories that generate employment fluctuations from the supply side of the labour market stumble over the facts that labour-supply looks to be not very responsive to wages (at least among adult men) and that real wages are not very cyclical. They also have a hard time making the jump from persistent changes in *employment* to persistent – not to mention involuntary – *unemployment*. In stark contrast, Keynesian economics may be theoretically untidy; but it is certainly a model of persistent, involuntary unemployment.

So the events of the late 1970s seemed to support the incumbent theory and undermine the challenger. Yet the challenger prevailed. Things were getting curiouser and curiouser.

Next came the 1980s, which were ushered in by another oil shock but were dominated by the Reagan-Volcker fiscal and monetary policy shocks and the European depression. I think it is fair to say that new classical economics shed little light on any of these events. The events, however, cast deep shadows across the theory.

1 According to new classical theory, a correctly perceived deceleration of money growth affects real output only via its effects on anticipated inflation and real interest rates. Virtually no one thinks real interest-rate effects very large, which is why simple models often ignore them. Yet when the Federal Reserve and the Bank of England announced that monetary policy would be tightened to fight inflation and then made good on their promises, severe recessions followed in each country.[22] Could it have been that the tightening was unanticipated? Perhaps in part: the Federal Reserve did seem to get carried away, and perhaps both central banks lacked credibility at first. But surely, the broad contours of the restrictive policies were anticipated, or at least correctly perceived as they unfolded.[23]

Old-fashioned Keynesian theory, which says that *any* monetary restriction is contractionary because firms and individuals are locked into nominal contracts, seems more consistent with actual events. Strike one against the new theory.

2 An offshoot of new classical theory due to Barro [1974] argued that debt-financed tax reductions should have neither real nor nominal effects because rational agents, correctly perceiving their future tax liabilities or those of their heirs, would act to offset them. The only observable consequence of such a policy, on this view, should be a rise in private saving to offset the government dissaving.

Naive Keynesian analysis, by contrast, sees the same event as expansionary fiscal policy. If monetary policy is unchanged, real interest rates, real output, and the price level should all rise. If, as happened in the United States, the stimulus to demand is snuffed out by the central bank, real interest rates should rise even more. There is no reason to expect the private saving rate to rise.

Taxes were, of course, cut massively in the United States between 1981 and 1984. Given the thin economic rationale for the policy, the Reagan tax cuts come as close to a truly exogenous fiscal experiment as we are ever likely to get – just the sort of thing that helps scholars discriminate among competing theories. What happened? The private saving rate did *not* rise. Real interest rates soared, even though a surprisingly large part of the shock was absorbed in exchange rates rather than in interest rates (so that net exports were crowded out rather than domestic investment). Real GNP growth seems not to have been affected; it grew at about the same rate as it had in the recent past.

It would be unfair to say that neoclassical theory offers no explanation for these events. A sudden rise in the productivity of capital in the United States would be expected to raise domestic interest rates and rates of return, draw in capital from abroad (thus causing a current-account deficit), and appreciate the currency. The only trouble with this explanation is that the alleged jump in the productivity of capital is unobservable and unexplained. Why, for example, did it not also happen in Canada?[24] Why did measured productivity growth not accelerate? Furthermore, neither private saving nor investment really rose much as a share of U.S. GNP. The neoclassical explanation does successfully explain the puzzling rise in the stock market. But, if the productivity of capital soared only in the United States, why did stock markets boom all over the world? And if the rise in capital's productivity was global, why did capital come pouring into the United States? Strike two against new classical theory.

3 Then we have the nasty matter of the European depression which, in some countries, has been as long and as deep as the depression of the 1920s and 1930s. The Keynesian explanation is straightforward. Governments, led by the British and German central banks, decided to fight inflation by highly restrictive monetary and fiscal policies. The anti-inflationary crusade was facilitated by the European Monetary System which, in effect, spread the stern German monetary policy all over Europe. If Keynesian theory has any trouble explaining these events, it is only because modern versions which incorporate the natural rate hypothesis are not Keynesian enough.

The new classical explanation of the European depression is . . . well, frankly, I am not sure there is one. Proponents of new classicism, and conservative economists in general, point to microeconomic interferences in labour markets. But most of these policies (such as generous unemployment insurance) were in place in 1973 when unemployment was extremely low. In my country, three strikes and you are out. It is therefore not surprising that new classical economics began to lose supporters.

Even this recent history might not have been decisive, given the insular attitudes of academic economists. But there was more scholarly evidence as well.

1 New classical economists had made the Phillips curve a test case and interpreted it in their favour. But, as I have already related, a succession of econometric studies in the 1980s, all concluded that the empirical Phillips curve was alive and well once you allowed for supply shocks, at least in the United States. Gordon [1987] argues much the same for Europe.

2 The newly developed technology for estimating models with rational expectations began to be applied; and the results were almost uniformly unfavourable to the new classical view [Rotemberg, 1984]. Normally, the trio of hypotheses that (a) expectations are rational, (b) supplies and demands result from optimizing behaviour, and (c) markets clear, had to be tested jointly. And almost always the joint hypothesis was resoundingly rejected. Which was the weak leg of the tripod? Most economists, instinctively attracted by rational expectations, thought it was market clearing. But it really didn't matter, for the new classical edifice required the entire lot.

3 Finally, the validity of the rational expectations hypothesis itself was called into question. Directly observed expectational data were used to test for rationality. Mostly, these were tests of the *weak* forms of rationality: that historical forecast errors averaged out to zero and/or could not be improved by using information that was available to the forecasters. They did not, and could not, test for the much stronger form of rational expectations required by new classical theory: that the economic model in the minds of the forecasters matched the true model of the economy. Nonetheless, most of these tests rejected rational expectations.[25]

So by 1983 or 1984, academic macroeconomics was in the following somewhat embarrassing position. Keynesian economics had been maligned on the grounds that its theoretical foundations were prosaic at best, non-existent at worst. Its heir apparent, new classical economics, boasted an elegant and technically sweet theory which passed internal consistency checks with flying colours, but which failed miserably when it came to consistency with observation. In the shorthand that was used both then and now, Keynesian economics was "bad theory" which, nonetheless, seemed consistent with the facts; while new classical economics was "good theory" which, unfortunately, did not describe the way the world works.

This, it seems to me, is a curious usage of the adjectives "good" and "bad" – one which reflects the academic economist's preoccupation with elegance and mathematical consistency over relevance and empirical accuracy. By these criteria, the "good theory" is not the one that explains the data best, but rather the one that is truest to neoclassical orthodoxy – which sees people as self-interested and maximizing individuals, who calculate well, have no money illusion, and do not leave unexploited profit opportunities. That is the attitude of a mathematician who deals in logical constructs, not of a scientist who deals in facts. If real people are social beings who care not just about their own wellbeing but also about their relative position in society, who are not very good at doing calculations or deflating by a price index, and who have other things to do besides maximizing all the time, then Keynesian theory may be the "good" theory after all – even if it is contaminated by ideas from other social sciences.

In any case, the view in academia was then (and in some circles still is) that we had a choice between a tight theory with empirical problems and a sloppy theory that nonetheless worked pretty well. A policymaker faced with such a choice would not hesitate long before picking relevance over rigour. But, in the academy, the choice was less clear. Obviously, everyone would prefer a theory that is both logically coherent and empirically verified. But what to do until we have such a fine theory in hand? To academic economists in the mid-1980s, there were two ways to proceed. Either efforts could be expended, making Keynesian economics more theoretically respectable, or energy could be devoted to bringing new classical economics into closer contact with reality. Work is currently proceeding along both lines. In my judgment, the work that is being done along the first route is much more interesting and promising, so I will summarize it briefly.[26]

New Keynesian Economic Theory

Four new developments in economic theory, all of them still in progress, shore up the theoretical foundations of Keynesianism.

The first idea is to build a macro structure on the foundations of monopolistic, rather than perfect, competition. This helps produce a Keynesian environment in two respects. First, it leads to theoretical models in which firms always prefer to sell more at current prices because price exceeds marginal cost. Second, output levels in monopolistic equilibria are generally below the social optima, which echoes the Keynesian idea that employment is typically too low. The knotty intellectual problem was always that the theory of monopolistic competition pertains strictly to *relative* prices while nominal magnitudes matter in Keynesian macroeconomics. Mankiw [1985] and Akerlof and Yellen [1985] solved this problem at more or less the same time by adding fixed costs of changing nominal prices to the model.[27]

While the theoretical results of monopolistic competition models are consistent with Keynesian insights, they lack certain important Keynesian features. For one thing, the main finding is that output is normally *too low*, not that it is *too variable*. For another, the models do not produce any natural notion of involuntary unemployment which, as I noted earlier, plays a central role in the Keynesian tradition.

Efficiency wage theory addresses itself directly to this last issue. The basic idea is simple and intuitively appealing: if worker productivity depends positively on wages, then firms may not want to cut wages even when labour is in excess supply. A true equilibrium with involuntary unemployment can arise. That sounds very Keynesian; but there is a hitch. As the monopolistic competition models, efficiency wage theories are fundamentally models of *relative* prices and *real* wages. They have nothing to say about nominal magnitudes, and hence allow no role for nominal money until they are altered to include fixed costs of changing nominal wages or prices.[28] Nor, in their current state of development, do they have much to say about *fluctuations* in employment.

A third important recent development in micro theory is the revision of the standard theory of optimization to include fixed costs of changing a decision variable (as just mentioned in the context of pricing decisions). The basic idea is that fixed costs make it optimal for a decision maker to do nothing for a long period of time and then to make a major adjustment. This view of the world seems to have three Keynesian features. First, behaviour displays a substantial amount of inertia. Second, it leads us to expect occasional large adjustments to what appears to be small economy-wide shocks. Third, it suggests that a more volatile economic environment imposes real costs on individuals and businesses by making them change their decisions more frequently. Though I have not seen the argument worked out formally, that would seem to support the traditional Keynesian advocacy of stabilization policy.

Finally, modern theorists are constructing models with "hysteresis," that is, models in which the economy's equilibrium state depends on the path we follow to get there. These models bring Keynesian economics back with a vengeance, for expansionary demand management policies can *permanently* raise output. Here is an example. Suppose workers who are more experienced are also more productive, perhaps due to learning by doing on the job, and that, conversely, human capital deteriorates when not in use. Then a demand-induced boom will build human capital and hence raise potential GNP for the future; so output can be permanently raised. Conversely, a recession which idles workers will deplete the human-capital stock and hence lead to lower potential GNP in the future. There is, then, no "natural" level of employment. The equilibrium level depends on what came before.

If we put all these four elements together – and let me say that the empirical evidence does not yet dictate that we should do so – we see a thoroughly Keynesian world. Decision variables, including nominal prices and wages, are inertial. Markets often equilibrate with excess supply. So, in particular, involuntary unemployment is common and firms have chronic excess capacity. At least within some range, the economy's equilibrium can be changed by demand management policies because there is no natural rate.

This world is different in every particular from the world envisioned by the new classical economics. But its theoretical foundations are no less strong and perhaps stronger. That is why Keynesian economics now seems to be on the ascendancy in academia. More importantly, it sounds more as the world we live in. That is why the gap between theory and policy may start to narrow.

The Supply of and Demand for Macroeconomic Advice

There is a widely held perception that economic science today is both less useful for and less used in macroeconomic policymaking than was the case, say, 10-15 years ago. Readers who have come this far will know that I share this sentiment. I have offered pieces of an explanation along the way; but it is now time to collect, organize, and amplify these thoughts. My discussion proceeds from a simple premise about what makes economic analysis useful to (and hence used by) policymakers:

Policymakers want seemingly correct, quantitative answers to counter-factual questions of interest to them.

Each adjective in this premise merits discussion.

Notice, first, that the questions that matter most are *counter-factual* ones. Policymakers are not scholars seeking knowledge for their own sake; they are often contemplating a particular course of action and want to know its likely effects. ("How would a tax increase affect interest rates, employment, and the trade deficit?") Or, putting the same sort of question the other way around, policymakers often want to know what actions will produce the outcomes they seek. ("How can we shrink the trade deficit without turning protectionist or causing a recession?") Counter-factual questions naturally cannot be answered without theory. So, whether they like it or not – indeed, whether they *realize* it or not – practical policymakers who disdain economic theory must, nonetheless, lean on it heavily.

Second, policymakers prefer *quantitative* answers, even when we economists cannot honestly give them. A decision maker may not be satisfied to hear that a rise in policy variable X would be expected to increase endogenous variable Y. He wants to know about magnitudes. Will a $10-billion tax increase reduce the trade deficit by $1 billion or by $10 billion? The answer may swing the decision. Yet economic theory normally delivers only qualitative answers and, once simple models are layered with enough real-world complications, often fails to deliver even that.[29] To make the step from qualitative to quantitative answers, a theoretical structure must be filled with numbers. Often that means greatly complicating the model so that it can be confronted with actual data and estimating it econometrically. That is why large-scale econometric models – clumsy and inelegant though they are – were and remain such useful tools for policy analysts. As Robert M. Solow once quipped, "a giant econometric model is like a smart kid from New York: it always has an answer."

But are the answers right? That is why I included the tantalizing adjective "seemingly correct" in stating the premise. No one really knows when the answer to a counter-factual question is correct. Yet certain answers *seem* right, while others seem wrong – especially to politicians, who often have strong prior beliefs and are not imbued with the academic's ever-questioning attitude. Unfortunately, the priors that politicians bring to economic issues rarely come from previously accumulated scientific evidence. They come, instead, from personal experiences (often inappropriately generalized), ideological predilections, and simple wishful thinking. Unless the politician is exceptionally open-minded, those who bring him answers he likes will find a much more receptive audience than those who do not. As Paul Samuelson [1962, p. 17] observed, "The Prince often gets to hear what he wants to hear."

The final point is obvious. Policymakers want to talk about questions that matter *to them*, not questions that matter to academics. Thus, for example, Barro's work [1977] might provide numerical answers to the question: How much would unemployment decline as a result of a 2-percent *unanticipated* decline in money growth? But this is not a question that most policymakers find meaningful. Only rarely do academics have any appreciable short-run influence on the questions that are prominent on the policy agenda.[30] Useful policy advice normally addresses the questions that politicians set.

Please notice that my premise describes *useful* advice, not necessarily *good* advice. Sometimes, the only honest answer to a question is, "Nobody knows." Sometimes the best scientific answer contradicts the policymaker's strongly held beliefs. Sometimes the best advice is to tell the politician that he should ask a different question. But such advice will rarely be heeded. When the gap between what the policy community regards as useful advice and what the scientific community regards as good advice is wide, the market for advice will dry up. Such a gap can arise either from the supply side or from the demand side. In the case of macroeconomics since the mid-1970s, I think the two sides must share the blame.

The Supply of Advice: Failures of Economics

When I served briefly as an academic on loan to the U.S. Congressional Budget Office in 1975, the preceding premise about useful policy advice was routinely and unselfconsciously accepted. Policymakers posed counter-factual questions which we technicians tried to answer quantitatively as best as we could using large-scale econometric models sprinkled with liberal doses of judgment. Since these models had grown more or less directly out of the academic research of the previous decade, a misplaced professor like me felt perfectly at home with them. No one, least of all us at CBO, thought these models perfect; but they seemed a better way of getting numbers than using random number generators, philosophical introspection, or astrology. Furthermore, we thought the numbers we produced had some small impact on policy decisions – much less, of course, than partisan politics, but an effect nonetheless. We fancied that this small effect was a salutary one. Finally, we never felt that what we were doing was academically disreputable. Indeed, the expectation was that academic research would continue to improve the models.

Shortly thereafter, however, academic economists began backing away, and then stampeding away, from this program. Why? I have argued above that the reasons were not sound, that there was a serious failure on the supply side of the market for economic advice. I traced this failure to three main factors, each of which is related to the rise of new classical economics:

1 *The skewed nature of the reward system in academia,* where fashion plays far too great a role, and where kudos and professional advancement are earned more for technical virtuosity than for practical utility. Obviously, such a reward system will tend to create a gap between what scholars see as worthwhile and what policymakers see as useful. I do not understand what changed the reward system in academia, but I feel certain that it did change.

2 *The nationwide, and to some extent worldwide, ideological shift to the right.* It is a strong indictment of any science to say that the answers it gives to positive questions are swayed by prevailing political ideology. But I think the charge sticks.[31] Superficially, the shift of academic economists to the right might have been expected to enhance the usefulness of economics to policy; after all, the political winds were blowing that way too. However, the religious devotion of right-wing economists to laissez faire and their fundamentalist insistence that *homo sapiens* behave as *homo economicus* were and remain foreign to most conservative politicians.

3 *The excessive attachment to abstract theory.* Economics in general, and macroeconomics in particular, has, it seems to me, taken the game-playing aspects of science too far and disengaged itself from reality. We seem to suffer from what has aptly been termed "physics envy." And, in our case, it is the most theoretical and mathematical branches of physics that we envy.

Of the three factors, the last has clearly done the most damage to the formerly symbiotic relationship between economic scholarship and economic policy. The more pristine and abstract economic theory becomes, the less contact it makes with the messy reality in which we all live, and hence, the less relevance it has to things that concern policymakers. The more we feed theory and starve empirical research, the less our discipline has to say to policymakers. The relationship between economists and policymakers – and, I think, the discipline of economics itself – would be in far better shape today if more academic economists were drop-outs from medical school rather than drop-outs from mathematics.

The shift in intellectual focus from empirical research to theory and, within theory, to ever more tightly specified optimizing models was prompted in part by the Lucas critique. Lucas, as I mentioned earlier, argued on a priori grounds that econometric policy evaluation could be seriously misleading if there was a substantial change in the policy regime. Without evidence that any such change had occurred, and without evidence that Lucas' problem was empirically important, academic economists pronounced the previous macroeconomic tradition intellectually bankrupt and abandoned ship. Lucas' criticisms were conceptually correct and, to some extent, redirected work on macroeconometric models towards more serious consideration of expectations.[32] In addition, however, the critique fostered econometric nihilism and encouraged academic economists to return to the theoretical womb.

By the late 1970s, both Keynesian theory and econometric research in the Keynesian tradition had been effectively discredited in academia. This left two voids. New classical economics offered to fill the theoretical void for academics; but it was far too remote from reality to be of any use to policymakers. And nothing filled the empirical void. In the United States, this situation set the stage for the ascendancy of supply-side economics. In Europe, it helped set the stage for paralysis and rising unemployment. This brings me to failures on the demand side of the market for economic advice.

The Demand for Advice: Failures of Politics

Politicians, bureaucrats, and the educated public around the world heard from the academy that Keynesian economics had been discredited. As outsiders, they had neither the ability nor the inclination to comprehend the technical arguments and so had no independent basis on which to judge the validity of the indictment. But they could see that the 1960s consensus had broken down and that scholars were quarrelling over basic issues that had previously been thought resolved.

At the same time, both politicians and the people who elect them saw economic forecasts going awry and the economy going wrong. Neither of these phenomena was limited to the United States; both were worldwide.

Stagflation came first, in the aftermath of OPEC I, and caught everyone by surprise. Traditional Keynesian theory was about aggregate demand fluctuations, which was, in retrospect, a serious shortcoming. It, therefore, left the impression that inflation and unemployment must always be negatively correlated. That is true, of course, only if economic fluctuations are dominated by aggregate demand. With important aggregate supply shocks, the theory carries no such implication. But stagflation was nonetheless labelled a complete mystery to, and therefore evidence against, Keynesian theory. This attitude was encouraged, as I noted earlier, by new classicals who argued that Keynesian economics should be buried along with the Phillips curve.

Furthermore, as pointed out in the section, "What It Means to Be a Keynesian," many Keynesians took a harder line against unemployment than against inflation. During the decade or so of high inflation (the precise dates differ by country), this normative judgment came to be increasingly at odds with public opinion. The public – and therefore the politicians – was disinclined to listen to economists who were soft on inflation. Unable to distinguish between *normative* propositions held by *some* Keynesians and *positive* propositions held by *all* Keynesians, the public rejected the entire list.

And then there was the matter of the wretched forecasts. I am most familiar with the U.S. case; but a similar story can, I believe, be told for most of the major industrial nations. Unaccustomed to thinking about supply shocks, economists underestimated the severity of the 1973-75 recession – even after OPEC I had occurred. Unable to predict OPEC II, they then badly underestimated inflation in 1979 and 1980. Next, the velocity debacle of the early 1980s made monetary policy far tighter than either the Federal Reserve intended or economists thought likely. So inflation fell faster and unemployment rose higher than forecasters anticipated. Finally, many prominent economists in 1983 doubted, incorrectly as it turned out, that the U.S. economy could recover rapidly from the recession while real interest rates remained so high.

To the public, stagflation, high inflation, and poor forecasts – all seemed to support the case being made against Keynesian economics. That was an incorrect inference for several reasons. First, no macroeconomic theory is supposed to predict the actions of an oil cartel, and Keynesian economics was quickly patched up to deal with supply shocks. (It did, however, need patching!) Second, economic science only claims some ability to make *conditional* forecasts, not *unconditional* ones. The rapid decline in inflation from 1980 to 1984 is a case in point. Conditional on the path of unemployment, U.S. Phillips curves tracked the decline of inflation extremely well. But few, if any, forecasters in 1980 thought the Federal Reserve would push the U.S. unemployment rate over 10 per cent in 1982; and so virtually all of them overestimated the staying power of inflation. Third, the fact that a theory occasionally makes large errors – as Keynesian theory did with velocity in the early 1980s – does not necessarily imply that its most visible competitor is better. You don't declare the winner of a singing contest after hearing the first contestant. As I have argued here, the events of the 1975-85 decade held worse news for new classical than for Keynesian economics.

But each of these considerations is a bit subtle for the world of policy, where economic illiteracy is rampant, snappy slogans sell better than complex explanations full of ifs, ands, and buts, and every question requires an immediate answer.

We must never forget that "policy" and "politics" share their first four letters in common. In politics, it is often more important for a proposal to *sound* right than to *be* right. Slogans and gimmicks that reflect little more than wishful thinking often excite the electorate; their lack of intellectual coherence is no handicap. Ideology has a way of interfering with rational thought. And, on many issues, vested interests count for far more than the national interest. Finally, anyone who has worked in a policymaking or advisory bureau knows that the pressure to come up with an answer – any answer – quickly is often overwhelming. And simple answers are preferred. But complex questions often have complex answers that can be arrived at only with patience, careful study, and application of empirical evidence. All of this takes time. Economic advisers should not be asked to answer every question by yesterday.

For all these reasons, I claim that the failures on the demand side of the market for advice have been at least as great as the failures on the supply side. It is a generic problem, I think, for good economics often makes bad politics.[33]

Healing the Rift

Can the happy marriage that once existed between academic economics and policy economics be restored? Maybe. But it will not happen soon. The preceding discussion suggests some of the things it will take to effect a reconciliation.

First, it will take luck. Economic forecasts – whether they come from large-scale structural models or unstructured time-series models – are more accurate when times are more placid and often go astray when events turn tumultuous. Such a statement says nothing about the quality of economic forecasting as a (pseudo?) science; it merely says that forecasts come closer to the mark when the random shocks are small. In fact, macro forecasts have been rather accurate in the United States of late, largely because both real GNP growth and inflation have been relatively constant for several years. A run of good forecasts will do much to restore confidence in economists – though not for any good reasons. The prospects for this happening are probably no better than 50-50.

But there is a second element of luck which we in the United States, at least, are unlikely to get. Economic advisers and policymakers are, I am afraid, more likely to be on the same wavelength when economists are telling politicians what they want to hear. In the U.S. case, at least for the foreseeable future, any responsible economist will be telling any politician who asks that we need to raise taxes and/or reduce government spending. Contemporary American politicians react to such suggestions somewhat as children react to offers of cod liver oil. Can't someone shoot the messenger? The dissonance between what economists say and what politicians want to hear will make reconciliation difficult for years. But the chronic budget deficit seems to be a peculiarly American problem. At least on this score, there is more hope in other countries.

Second, we need sensible people in authority. The factors that turn good economics into bad politics are always present, but to greater or lesser degrees. We all know that some politicians are more statesmanlike, principled, and open-minded; while others are more political, opportunistic, and pig-headed. The former are likely to make more and better use of economic advisers than the latter – as long as they select principled, open-minded economists as advisers!

Third, economic advice will carry more weight if and when the macroeconomic consensus is restored in academia. While the macroeconomic fraternity remains quarrelsome and divided, policymakers will remain skeptical of their advice. Are the prospects for a new consensus bright? Not anytime soon. But the new strains of Keynesian theorizing that I sketched in the section "Recent Doctrinal Disputes in Macroeconomics" hold out some real hope that the future will be better than the past.

Fourth, and perhaps most important, academic economists must reorient themselves in more empirical directions. They must focus more on the world as it is, rather than as they wish it to be. That is not happening now. The internecine warfare that has racked our profession in recent years has, in fact, forced Keynesian economics to become more abstract and theoretical in order to defend its soft theoretical underbelly. As I have argued in this paper, Keynesianism fell from grace not because its empirical implications were falsified, but because its theoretical underpinnings were shaky. Current efforts are therefore sensibly being developed to shoring up the theoretical foundations of the Keynesian edifice.

This is all very interesting and important in the academy. But it should not be expected to produce research that is useful in Washington, Ottawa, Bonn, or Tokyo. For that, we will all have to wait a while longer.

Commentary by Rod Dobell

> Tonight we do not want to linger on analytics, except perhaps to draw the obvious moral that, if economists spend more and more of their time on highly technical mathematics and statistics, they must not be surprised if the intelligent man of affairs comes to ignore this part of their activities [Samuelson, 1962, p. 5].

As Alan Blinder observed in his paper, one can go on and on with jokes at the expense of economists, their inability to be unambiguous, their propensity to be hypothetical and counter-factual, their failure to agree on anything at all except the law of supply and demand (but not what it means). At meeting after meeting, economists cry out in anguish at the failure of anyone in authority to take seriously what the profession professes to know for certain, at the failure of the professional economist to drive out the "do-it-yourself economics" on which so many decisions seem to rest, even in areas where economic science seems most certain of its ground.

Blinder suggests two major reasons for this failure to take the economics profession – or at least the advice of academic economists – seriously: one is the retreat into the ivory tower in pursuit of elegant theory; and the other is the impression that economic advice makes hard listening, almost always counselling rather certain and concentrated short-term pain for rather dubious and diffuse long-term gain. That is, good economics makes bad politics because the political setting is in some sense too immature to absorb the tough lessons. Lindblom and Cohen [1979] offer some reasons why one might say that the profession of policy analysis generally (or economic analysis in support of economic policy more particularly) is as yet too immature to tackle problems usefully.

I shall argue instead that, in fact, on the big issues under consideration at this meeting, the discipline of economics really has less to say than is claimed, and any pretence of authoritative advice should be treated very skeptically.

The discussion to this point has raised a number of fascinating issues suggesting the need to look very broadly at the evolution of our ecosphere, the international organization of economic activity, the problems of human-resource development and industrial relations, the value of the social contract, and the need for new decision-making processes and institutions.

Obviously, the purpose of this session – Alan Blinder's paper and this comment – is not to offer a summary of that discussion, but rather to explore how far, or whether, we can look to the discipline of economics for analytical support in resolving some of the dilemmas posed by these developments.

Professor Blinder offers a masterful account of the "market" for policy advice, taking for illustration the case of macroeconomic policy. He concludes with the suggestions that though good economics usually seems like bad politics, the demand for empirically based, relevant analysis is likely to remain in the future, and that we can look forward at least to the possibility of macroeconomic policy advice that is accepted as useful in national capitals.

It is hard to fault his analysis. Indeed, it is rather a difficult task to initiate a spirited discussion on a paper of which one's first reaction is, "I wish I'd said that!"

Since I agree with so much of what Blinder says so well in his paper, I shall confine myself in these comments to elaborating a little on his story, then will suggest that in our discussion we ought to go beyond the case of macroeconomics (or worries about the business cycle) to some of the bigger issues of political economy or economy-environment linkages. I will conclude by considering whether, overall, the "somewhat optimistic conclusion" to which Blinder is led is really warranted, or may be still too rosy a hue to paint the current uses of economic science in public policy. (I will also overstate and exaggerate things for the sake of argument, for reasons more of very coarse steering than very fine tuning.)

Capsule History of Macroeconomic Science

On the level of elegant theory, one can trace the evolution of general equilibrium models with optimizing components everywhere, and conceive of building up an aggregate structure whose properties would be rigorously derived from these micro foundations. Introducing the dynamics of growth in underlying stocks of endowments, one can build a fully articulated model of growth in a (largely) self-regulating causal system. With instantaneous market clearing, these static and dynamic general equilibrium structures can be brought together in one neat package with, as just noted, the aggregate properties all being seen as derived from the life-cycle optimization calculations of all the individual decision-making units processing information rationally and interacting on efficient markets. Where necessary, these markets can be extended to contracting arrangements which deal effectively, à la Coase, with problems of externalities and unpriced goods (or bads).

For the most part, questions relating to the efficacy or desirability of the allocation of property rights and the distribution of ownership of all the basic endowments are not addressed in these models. Where they do arise, however, they can be handled, it is said, by appropriate redistributions of initial endowments.

Such a model, as Blinder notes, has not only the intellectual appeal of rigour and elegance, but the practical appeal of an intellectual rationale for policies of laissez faire. It creates new classical intellectual foundations for the old classical conclusion that in market economies left to operate on their own, whatever is, is optimal.

But when it comes to application, there are problems. In the first issue of *Canadian Public Policy*, the Honourable Bud Drury, reflecting on the role of theoretical analysis in the policy process, is led to quote the mathematician G. H. Hardy on the subject of reality testing.

> 'Imaginary' universes are so much more beautiful than this stupidly constructed 'real' one; and most of the finest products of an applied mathematician's fancy must be rejected as soon as they have been created, for the brutal but sufficient reason that they do not fit the facts [Drury, 1975, p. 90].

If one thinks in terms roughly of decades over the past half-century and in terms not of elegant economic theory but of a system to explain experience in economic affairs, it is not surprising that, by the 1930s, practical people close to policy found the complacent conclusions of classical economics out of tune with the times and developed, from the top down, with only the most ad hoc of micro foundations, a feedback model of aggregate demand that admitted unemployed resources. Over the three decades of recovery from depression and conversion from wartime demands, such a model of aggregate demand served tolerably well as a guide to economic policy aimed at avoiding the most overt costs of unemployment. As expectations of full employment became entrenched, and capacity constraints began to bind, and concerns for the natural resource constraints to be encountered by a continually expanding scale of economic activity surfaced, it is not surprising that a model of aggregate demand alone – and policy based upon it – was seen to break down.

With supply shocks and rampant speculation over that decade running from the mid-to-late 1960s to the mid-to-late 1970s, it is also not surprising that one response was to build a model of (growing) aggregate supply into the basic Keynesian framework and begin to explore the dynamics of the price adjustments which would link the demand side to the supply side. Onto that basic mechanism, all kinds of lags, frictions, and irreversibilities would naturally be grafted. So as we absorb the lessons of the massive swings and fluctuations from 1965 to 1975 and 1985, it seems natural that for those concerned with the pragmatic modelling of a stupidly constructed moving disequilibrium, the next stage of the work would be to shore up the theoretical foundations of this eclectic Keynesian structure. And indeed, the end-point probably does not change very much whether one pursues this path by adding supply considerations to a model of demand (as Blinder outlines) or by introducing demand considerations into growth models (as noted in the first chapter of Burmeister and Dobell on *Mathematical Theories of Economic Growth* [1978], or as described in the much more extensive work of Mundell on *Monetary Theory* [1970]).

It is interesting, I think, to look back a decade and a bit to link these present reflections to an event – the report of the so-called McCracken Group – which seems to foreshadow much of this current discussion. During the 1975 OECD ministerial meetings, Henry Kissinger proposed the formation of a group of independent experts to examine the proposition that the economic world had changed dramatically and fundamentally, and to advise upon appropriate action to restore better economic performance.

That international group of experts on non-inflationary growth reported to the OECD in 1977, and its report was the subject of what would in diplomatic jargon be called a "frank and lively" discussion in a Carnegie-Rochester conference the following year. The Carnegie-Rochester group, led by Robert Lucas, overwhelmingly rejected the report as intellectually inconsistent and far too activist. As the person responsible for the research staff supporting the McCracken Committee, I tried to suggest to the Carnegie-Rochester group that in the OECD context, still dominated by what was styled as "naive Keynesianism" and oriented towards demand management, the report was seen as far too conservative and far too restrained in the face of a crying need for action.

> It introduced a strong concern for monetary considerations, for the role of expectations in the decisions of individual economic agents, and for the impact of government actions in affecting both the aspirations and the anticipations held by individuals making economic decisions. . . . On the other hand, the Report did emphasize the primacy of the longer-run goal of full employment. It placed the problem of inflation against the background of more fundamental measures of economic performance and stressed the concern for controlling inflationary pressures in order to avoid more adverse consequences on unemployment and underutilization of resources [Dobell, 1979, p. 182].

But what is particularly interesting is the debate over policy discretion which surfaced in this context. In my remarks to the conference, I summarized it as follows:

> The members of the McCracken Committee did start, it seems to me, with the conviction that the economic policy-maker's hands are not completely tied, even today, and with the belief that it would be feasible and useful to produce a report. From these two propositions alone, given the environment outside the Committee, and the need for compromise within, much of the nature of the Report follows almost inevitably.
>
> It is possible that the result is not one which satisfies the participants in the Carnegie-Rochester Conferences. Indeed, it is possible that there is no tenable interior solution at all, that any pragmatic compromise position is worse than one or another polar case.
>
> There is, however, a wide span between those who believe in an underlying model structure – however eclectic – that is useful for policy purposes and those who believe that such a model is in principle unattainable. According to some metric based on the balance of emphasis in their recommendations, the McCracken Committee moved a long way from what would be considered a 'Keynesian' position toward what may be considered a 'monetarist' school. Indeed, the Report probably moved as far as would be possible for a group of 'action-oriented' individuals in government as opposed to universities.
>
> Lucas starts from the conviction that we have no model of economic structure adequate to support fiscal policy – or indeed any active economic policy – and he has the courage of his convictions. He is willing to stay out of the policy debate. He suggests that economists disown what he deems an almost certain activist intervention over the next decade and preserve the logical validity of their analyses. Better to abstain with rigor than to act on partial evidence and possibly misguided judgments.
>
> The members of the McCracken Committee, by contrast, may well have felt that they should throw their weight on one side or the other. And, with many qualifications, they did so, on the side of more stringent guidelines and less activist policy, sufficiently clearly to be accused of unfeeling allegiance to market mechanisms.
>
> Thus, it is easy to see why Lucas despairs of the McCracken Report. The Committee may have moved somewhat away from fiscal activism – the so-called naive Keynesianism of the OECD – but it has failed to move all the way toward the policy nihilism to which Lucas's impeccable logic leads him [Dobell, 1979, pp. 183-84].

Thus, in this emphasis on supply-side considerations – concern for the stability of the environment for economic decision making, and for various costs of adjustment – one can see a reflection of the theoretical work on economic dynamics and transient solutions to optimal growth models which dominated much of the macroeconomics literature of that decade from the mid-1960s to the mid-1970s. We can also see the foreshadowing of the later ascendancy of the "fresh-water" school on the question of discretionary economic policy. As I noted at the Carnegie-Rochester meeting:

> If Lucas is right – if the introduction of unobservable variables like expected rates of inflation destroys rather than modifies the earlier modes of analysis, and the 'neoclassical synthesis' proves logically inconsistent – then, obviously, any attempt to talk about discretionary economic policy, based on however eclectic a model, is misguided and bound to failure. The only thing to be said on this point is that it seems unlikely that any member of the McCracken Committee would have accepted that premise in its entirety [Dobell, 1979, p. 181].

But, as Blinder so persuasively argues, the decade of disarray up to the mid-1970s did generate over the subsequent decade a more extreme reaction which rejected not only the demand-side model, but the notion of stabilization policy itself. One can speculate that the appeal of this approach was not only in its lofty intellectual elegance, but in its effectiveness as a rationale for a policy of non-intervention by the state in private economic activity.

A couple of decades of rising prosperity no doubt also contributed strongly to the influence of those who preferred the existing distribution of economic power and property rights to any exercise of political power and voting rights to alter market outcomes.

(What is also interesting is that the past weeks of the great Canadian debate over "free trade" were really, at heart, about another attempt to limit quite severely the scope for discretionary economic policy by tying such policy into a framework of "fair" trade as defined primarily by American interpretations of that elusive concept.)

The point of this long digression thus is to affirm and underline the part of Blinder's argument which suggests that the selection of a macroeconomic model for policy purposes probably reflects an underlying predisposition for or against discretionary government policy more than it reflects either the theoretical or the empirical merits of the model. The complexities of the eclectic Keynesian model are no match for the simple arithmetic of deficits, and even the latter is no match for the simple logic of electoral boundaries.

The continuing appeal of arguments against any collective intervention in market mechanisms is, of course, a more general phenomenon to which we will return briefly below. First, however, let's consider the Blinder arguments in cases of economic policy going beyond the problem of the business cycle. There too, the discipline of economics may not be equal to the tasks we lay upon it.

Long-Term Resource Allocation

The case of macroeconomics is perhaps the most striking example, and certainly the richest theoretically, of a possible conflict between elegant theory and sound (or, rather, usable) advice on economic matters. But the Council's question "Is the discipline of economics up to the task?" can be taken well beyond economic policy in the sense of traditional macroeconomics, to apply to economic aspects of regional, social, or environmental problems. Doubts as to the adequacy of the conventional machinery of economic analysis in dealing with concerns for sustainable development, for example, were expressed strongly by the Brundtland Commission and the subsequent report of the Council of Resource and Environment Ministers in Canada.

The Brundtland Commission report, *Our Common Future*, has argued eloquently and persuasively that economic development paths or economic decision patterns that are ecologically unsustainable – that run down our ecosphere and our basic renewable resources – cannot be efficient in any meaningful sense.

Similarly, I would argue that economic development paths or economic decision patterns that are socially unsustainable – that fray our social fabric and run down our community structures and our human resources cannot be efficient in any meaningful sense.

What is fascinating at this juncture, I think, is that we are seeing what might be thought at first glance to be the least likely professionals – statisticians and accountants – struggling with this fundamental philosophical issue. Major efforts to establish *resource accounting frameworks* have been under way to offset some of the most blatantly short-sighted failures of economic theory to take account of the draw down of our most vital resources in assessing the efficiency of resource allocation. And even more difficult, efforts are under way within the accounting profession to develop some forms of *human-resource accounting* suited to the service-based, intermediation-oriented economic structures of the current and coming era. This new "radical accountancy," or political economy of accounting, may do for an economic theory of intermediation and organization what the halting efforts at national accounting did for the industrial economy of 60 years ago.

And if so, we may then have an economic calculus which puts value on sustaining the resource bases that really matter – a social contract on behalf of current generations for a responsible sharing and pooling of roles and risks in an open society in an increasingly interdependent world economy.

Michael Wilson's 1984 *Economic Agenda* complained that we have "substituted the judgments of politicians and regulators for the judgments of those in the marketplace" [Government of Canada, 1984, p. 2].

With all respect to Mr. Wilson, such contracts as we have described above call for judgments that can only be made collectively, politically, and go far beyond the judgments of any marketplace presently around.

The market, it is said, is myopic; the analytical machinery of project appraisal fails to look far enough down the road at environmental consequences, fails to look broadly enough at distant impacts, and fails to give sufficient weight to future generations and distant communities or different cultures.

Indeed, more generally, for reasons outlined by Keynes long ago, the market does not, in fact, really address itself to those longer-term issues. The judgments of the marketplace are addressed to maximizing the value of the holding of a given collection of people (where they are not addressed to maximizing the position of a small clique of managers). They are directed towards leveraged buy outs, takeovers, and the so-called "markets for management" – speculation and paper entrepreneurialism – as much as (or more than) fundamentals of efficient allocation. And they are driven more by what we can measure – quarterly financial returns on financial portfolios – than by what we know matters. Those judgments are not addressed to the value of investment in human resources, which enter the books of no corporation. They are not addressed to sustaining the value of an ecological system which no one owns.

They are, therefore, not addressed to the policy questions about which this meeting has (properly) focused most of its attention.

Until we have this broader accounting and decision framework, my answer to the Council's question has to be that economic theory is not up to the task assigned to it; and I, therefore, come away from all this a little less optimistic than Professor Blinder seems to be. (This, by the way, is the *real* supply-side argument.)

Whether one can achieve any alternative consensus-building mechanism around these broader problems without falling into some form of elite corporatism is, of course, a serious question – but for another day.

How Pessimistic Should We Be?

In the last half of his paper, Blinder examines the market for macroeconomic policy advice, noting that economists can be faulted for a variety of failures on the supply side, particularly an excessive appeal to abstract theory induced both by a skewed incentive system in academia and the inherent appeal of elegant laissez-faire logic at a time of a pronounced ideological shift to the right. He also notes what he sees as failures of politics – the general inability to sort out where economists agree on analytical description but part company on normative prescription; the too hasty rejection of the eclectic Keynesian model on the basis of an empirical performance that was not as bad as it seemed; but mostly the unrealistic demand for quick snappy answers which fail to give the necessary weight to the complexities and uncertainties of the underlying real world.

Where does this quick survey of the sociology of the policy process leave us? The key element in Blinder's account, it seems to me, is his emphasis on the requirement that to be usable, the results of economic analysis must be *plausible* – they must *seem* right to the user.

At first glance, this selection criterion seems to condemn us to a very distressing mediocrity in economic policy, since there are more than enough results around, over a sufficiently wide range, that there can always be found something to fit anyone's prior belief, whether nurtured on the street, in the nursery, or at the country club.

We can look at these questions a little more broadly, but still within the basic construct offered by standard economic theory. Thus we can look at the determination of individual and group preferences, goals, objectives as the "desires" side of the social decision problem, and the determination of technological potential as the "feasible" or "possibility" side. But both are broadly non-economic; the first reflects culture and tradition (anthropology); habit, perception, and cognition (psychology); transmission of values (sociology); ethical principle, value, and belief systems (philosophy). The latter rests on philosophy of science, endogenous R&D, science-based innovation processes, the diffusion of knowledge, adaptation to innovations, and so on. Between these broad preference contours and broad possibilities frontiers, one may imagine two decision processes mediating: market mechanisms and collective mechanisms. Both have the task of reconciling our goals with our means.

Economics as a discipline thus suggests a framework, but deals in only very limited ways with the longer-term dynamics shaping underlying social preferences and potential, and deals not very well at all with all the non-market mediating mechanisms which reconcile the two.

Recall the quotation which Professor Dansereau gave us earlier this meeting: "Economics is a science of life, nearer to biology than to mechanics." That may be an apt characterization of economics as it should be; it does not seem fully accurate of the more limited discipline Professor Blinder discusses in his paper, even when it includes all the bells and whistles he describes.

Thus I would be less optimistic than he about the prospects for building the tighter links from economic science to economic policy that might seem, to the academic, appropriate. "Do-it-yourself" economics seems likely to dominate the scene for some time to come.

Conclusions

Because it is the Economic Council of Canada posing the question, it is probably natural to ask whether the *discipline* of *economics* is up to the task. Can the discipline of economics provide an analytic base for resolution of all these dilemmas just cited? No – for all the reasons just cited.

Conventional economics and market mechanisms work well where industrial production and produced means of production – capital goods – are concerned. They work markedly less well where dematerialization and intermediation and complex logistical networks are dominant, with unproduced or unpriced means of production (knowledge, ecological goods and environmental resources, human resources and social networks) as the key assets.

Market judgments generally are not aimed at these assets – hard to price, hard to own, hard to trade – and market judgments generally do not reflect the criteria of stewardship and sustainability which are critical in the long term. The separation of decisions into a prior market-driven concern with efficient resource allocation and a subsequent social concern with more equitable distribution is not valid in such a setting. Consequently, the discipline of economics, premised on such market mechanisms and such separations, can hardly be relied upon as a sufficient guide to social action on these key issues. A broader framework is necessary.

Are the human sciences more generally up to the task? Not yet.

Not just a broader framework, but – dare one say it? – a truly interdisciplinary effort will be required, and one offering effective links to the natural sciences which provide the basis for the study of global change and the evolution of the ecosphere. Thus to embrace the issues raised here today will demand not only a different institutional setting for social learning and social decisions, but a different institutional setting for academic research and a different scoring system for those doing analytical work in support of public policy.

But withal, the human sciences – embracing a wide range of searching scholarship and rigorous analytical exploration – remain the last best hope for reasonable judgments that do not waste the resources available to us to meet human needs.

I come away from the discussions of these last two days with the feeling that to deal with the problems of the third millennium, we will need less authoritative economists, more human-resource accounting, more ecological-resource accounting, more accounting for knowledge and access to information, and greater recognition and acceptance of tradition-based collective decisions, rights-based collective decisions, and simple community-based collective decisions along with market-based individual decisions. What we will need to find are institutions to assure conscious reliance on the judgments of the marketplace as an aid to social action, not blind subservience to the forces of the market as a replacement for social responsibility.

As always, however, the magnitudes themselves – appeals to the numerical restrictions of empirically based models – are the key defence against wishful thinking and totally unrealistic promises or expectations. The reality testing inherent in having to confront the budget constraints, the balance of payments, the conservation of value and the conservation of matter continue to exercise the most salutary discipline on claims and schemes which otherwise would fly their earthly bonds altogether.

And the discipline of economics is particularly essential to force attention to the constraints of arithmetic, conservation, materials balance and accounting balance. Those are all inconvenient, painful facts of life. They determine whether the state or the community can meet the promises it makes and the commitments it takes on.

Sound economics thus may make hard listening and dismaying discipline. But perhaps we can still hope that in Canada in the year 2000, this will not necessarily be bad politics.

13 Epilogue

What, then, are the major conclusions of this undertaking? What are likely to be some of the major policy issues as we enter the 21st century and what, therefore, is the research agenda needed to inform the policy debate? Definitive answers are impossible but we attempt, in a few closing pages, to extract some themes and issues and point to certain gaps in the foregoing discussions.

First, at the most general level, it is clear that in order to construct a vision of the future it is necessary to identify the many forces that will shape that future and to analyse their interrelationships. It is the dynamics of the *linkages* among evolutionary systems – technological, environmental, demographic, social, cultural, and economic – that determine the course of global development. More important perhaps is the normative side of this conclusion. That is, if we hope to influence events, to fashion a vision of the future that is more agreeable than that predicted, we must be prepared to adopt a framework of analysis, monitoring, and policymaking that is explicitly intersystemic and intertemporal. Such a conclusion sounds rather grave and academic. However, it is precisely such a framework, with its emphasis on linkages, that is increasingly required by emerging policy issues. A concrete example may serve to illustrate.

One of the strongest messages to emerge from Section I, but one with echoes in Sections II and III as well, has to do with the relationship between economic activity and the environment. What makes this an exciting example of systems linkages is that it is one which now commands widespread public attention, increasing understanding, and political momentum. Mounting scientific evidence, widely communicated in the mass media, points to biospheric degradation as a direct result of economic activity: destruction of the ozone layer, the greenhouse effect, air and water pollution, desertification, and deforestation, to name a few examples. Public awareness and concern are beginning to elicit political responses that explicitly acknowledge potential trade-offs: the currency of the concept of "sustainable development" is a case in point.

While such developments are welcome and heartening, the conference presentations and discussions make it clear that to steer a successful course to the future requires an infinitely more comprehensive and complex decision framework than mere recognition of the trade-off between economic activity and ecological health. New technologies will bring the power to accelerate the process of ecological despoliation while, at the same time, holding out the prospect of alleviating it. Worldwide demographic changes have enormous potential to affect the relationship among economics, the environment, and technology. And the role of "shocks," "discontinuities" and "surprises" complicates the situation even more. Finally, time is a major constraint. Many of the major systemic trends have considerable momentum while our ability to reverse them is hampered by a series of lags: the lag in recognizing and understanding the problem; the lag in developing the political will to deal with it; the lag in formulating the required action; and the lag before the desired effect is achieved. So what can we do?

From the standpoint of governments, one of the first steps might simply be the articulation of a global, intersystemic, intertemporal approach to decision making. This would be far from easy in Canada, where a traditional national self-consciousness has tended to make us inward-looking: our preoccupation with regionalism, language problems, and federal-provincial relations militate against a more holistic, outward-looking approach to the future. On the other hand, one might argue that as a very open economy, Canada has perforce strong economic ties to the international community and, thereby, a major stake in technological development. As a large and relatively underpopulated country, we have a more than passing interest in global population trends. And as a country bordered by three oceans and with the largest freshwater resources in the world, we surely have a stake in environmental developments.

Thus many of the necessary conditions for a comprehensive framework are present, but the sufficient conditions probably consist of public awareness and expressed concern, political will, and government leadership. Given such conditions, and the articulation of a strong "mission statement" of the kind suggested above, a second step might be for governments, at all levels, to facilitate "futures exercises" or "visioning." Not only could such exercises greatly increase understanding of the linkages among evolutionary forces, and, in addition, of equal importance, they could serve as a powerful tool of general education.

Such exercises could be augmented, in turn, by the development of a comprehensive framework of relevant indicators, nationally and globally, that would permit (and encourage) the monitoring of critical trends. At the national level, this might involve not only the familiar analyses and forecasts of economic performance but, in addition, indicators of technological developments, national health measures, and a variety of indexes of environmental quality, *inter alia*. Such a "state-of-the-nation – and state-of-the-planet – score card" could be a valuable tool for monitoring national and global progress in its various dimensions and for establishing accountability for results.

A closely associated conclusion to be drawn from the discussion of global systems and their linkages is that, to deal with the challenges they pose and to frame appropriate policy responses, far-reaching institutional changes in decision making will be required. Starting at the most general level, it seems clear that more than ever before, many crucial decisions will require international consensus. In the economic sphere, this process has already gone beyond international trade negotiations and the activities of institutions such as the World Bank and the IMF, to consideration of harmonization of national macroeconomic policies. Environmental policy is perhaps the most vivid example of the need for an international approach, but the sheer size and gravity of world demographic pressures make it likely that this too will be an area requiring such treatment.

Such global policymaking seems destined, moreover, to bring a whole new set of contentious issues to international bargaining tables. How, for example, should the costs of environmental repair be distributed? Poorer nations, with crushing debt burdens and population pressures that further threaten the fragile ecosystem are already resisting the pious calls of the developed countries to proceed with prudence. One might therefore speculate that poorer nations may use the environmental threat as a bargaining chip to obtain economic aid, access to new technologies, and a haven for excess population.

At the national level, an intersystemic framework seems to require governments to eschew the narrow, compartmentalized approach to decision making that characterizes the vertical structure of traditional ministries. To repeat an example cited earlier, technological change is of vital importance to decision makers not only in departments of industry, science and technology, but also in labour, employment, communications, defence, health, education, and regional development. Such issues – the environment is another obvious example – are of such wide scope as to require a more "horizontal" approach to decision making – one that cuts across conventional departmental domains.

More specifically, the process of analysis and policy formulation could be immeasurably improved by better communications among the various disciplines involved.

Institutional adaptation will be a challenge not only to governments, but to employers and labour as well. Clearly, the global, intersystemic view is essential to the multinational corporations that must closely monitor geopolitical events, analyse national economic policies, evaluate the latest technologies, and participate in transnational joint ventures. But industry's success will depend not only on technological superiority and aggressive participation in global markets, but, increasingly, on organizational flexibility and human-resource development. In Canada, lower rates of labour force growth, fewer young people entering the work force, and rapid skill obsolescence due to technological change will put ever-greater emphasis on retraining and re-education, with attendant challenges both to business organizations and educational institutions.

Labour will also be called upon to make some difficult adjustments. Adversarial modes of collective bargaining are under attack, and in some countries, where such modes have been the traditional mainstay of the industrial-relations systems, union membership has declined. The shifting technological paradigm calls for organizational changes that emphasize more collaborative workplace relations. Furthermore, there is increasing evidence that both the organizing strategies and the general objectives that were appropriate to unions in an economy dominated by goods production must be reconsidered in light of the ascendancy of the service sector. Thus for unions too, institutional transformation would appear to be in the cards.

In a sense, many of the conclusions and observations that emerge from these papers and proceedings have to do with education. That is, citizens will need to appreciate the breadth and complexity of the forces of change, and government mind-sets, and institutions in all sectors and at all levels, will have to respond. But "education" in the rather narrower sense of formal schooling and vocational training was a recurrent theme of the conference that surfaced in every block and, indeed, in almost every paper. There was a clear consensus that for a world that will be characterized by strenuous competition, growing technological complexity, knowledge-intensive production processes, rapid skill obsolescence, uncertainty, and shocks, human-resource development will be at a premium. Important policy issues in this area will likely include restructuring of the educational delivery system to meet the re-education needs of growing numbers in the adult work force, the relative responsibilities of the public and corporate sectors in education and vocational training, and the financing of the scientific research and technological development necessary to maintain industrial viability.

Finally, and closely related to the issue of human-resource development, it appears that as Canadians contemplate the prospects for the future, they will increasingly be led to confront a variety of distributional questions. Who gains and who loses from technological progress and economic development? What are the necessary and sufficient conditions for cooperation of the social partners in the pursuit of material progress – for economic consensus, in other words? Can a social compact be forged, whereby the relationship between the national objectives of equity and efficiency is synergistic rather than a trade-off? And the equity issue will become more and more an international and intergenerational phenomenon, as it becomes clearer that the socio-economic and technological concerns are intimately linked to concerns about the environment and global population pressures.

What, then, are some major issues that did not receive particular attention at the Perspective 2000 Conference? First, health. Viewed as a global system, this area of concern certainly manifests characteristics similar to many of the other systems we have considered – "tendances lourdes" and unforeseen and other catastrophic shocks, for example – and it is clearly interrelated to socio-economic status, technology, demographic developments, and the environment. The constellation of forces, which produced the malnutrition and famine in sub-Saharan Africa or the poisoning in Bhopal, illustrate the need to view health in the linked-systems framework. Furthermore, some scientists believe that the contemporary scourge of AIDS could acquire such enormous proportions as to significantly affect some countries' demographic developments and affect their social and economic evolution in ways that cannot as yet be derived.

Next, there is a range of socio-cultural issues which should similarly be part of the linked-systems approach. One obvious dimension of this issue stems from the likely future magnitude and pattern of immigration into Canada. The national and ethnic profile of immigrants has shifted substantially in recent decades, and one may surmise that the socio-cultural balance of the Canadian population and work force – and, therefore, their dominant attitudes and expectations – may be expected to reflect such shifts. The rapid growth of the population of Canada's aboriginal people will add another element to this changing socio-cultural balance. Language, education, and the regional and rural/urban distributions of the population are likely to be important policy issues stemming from such socio-cultural considerations.

One other socio-cultural dimension that is very much dependent, in turn, on economic developments, is patterns of time use. Many observers have predicted that, confronted by the income/leisure trade-off, many consumers will opt to enjoy some part of increasing prosperity in the form of leisure time. Others, including Nobel Laureate Wassily Leontieff, suggest that such choices will be facilitated by the rapidly growing potential of new technologies to relieve human beings from a wide range of time-consuming activities with no adverse effects on output. Still, others suggest that a major feature of shifts in time-use will take the form of the substitution of unpaid for paid work – for voluntary activities such as caring for the increasingly aged population.

Finally, there is a complex series of issues surrounding the institution of the family. The ramifications are far-reaching. In light of low natural rates of population increase there are questions as to whether Canadian policymakers may be led to consider the encouragement of family formation by economic incentives of the kind recently advanced in Quebec. Next, since family characteristics are shown empirically to be the most consistently significant determinant of educational attainment, then, given the anticipated importance of education in future socio-economic developments, it appears likely that family issues – size, structure, and economic status – will receive policy emphasis in the coming decades. The specific issue of day-care funding and the respective roles of individuals, employers, and the state in its provision, is a harbinger of the fractious questions likely to arise in this area.

In conclusion, it is worth emphasizing that exercises such as Perspective 2000 should be regarded less as discrete events than as stages in a process. It is hoped that some of the ideas and suggestions advanced may help in some small way to raise the consciousness of influential Canadians about the powerful and complex constellation of forces that will determine the future of the country and, indeed, of the planet, in the decades to come.

Notes

CHAPTER 1

1 This paper draws heavily on work conducted in the program on "Sustainable development of the biosphere," led by the author at the International Institute for Applied Systems Analysis (IIASA) from 1984 to 1987, and since that time directed by Dr. Alan Solomon. Some of the material used here is based on earlier versions that have appeared in various project documents. See Clark [1985 and 1986]. Material quoted from these documents is used with permission.

2 For the data quoted here, plus a wealth of long-term, global data on technical change and development, see Rostow [1978]. Note that the objections to Rostow's central thesis in this book (i.e., those concerning universal stages of economic development) in no way undermine the value of the basic data and perspectives presented.

3 For a development of this perspective, see Ramo [1988].

4 Unless otherwise noted, the material and data used here are taken from Toth, et al. [1988].

5 For the analysis behind the data summarized here, see Clark [1986].

6 Many attempts have been made to identify the quality of life indicators more useful than the per-capita GNP figures so often encountered in contemporary debates. While other choices are possible, I follow here the recommendations of the recent Wingspread Conference on "Agenda for the year 2000" and use infant mortality and life expectancy at birth. Some measure of literacy should be added as well, but time series data on the subject are notoriously difficult to handle. Figures cited here come from computerized data files of the United Nations.

7 Estimates by the International Monetary Fund quoted in Columbo [1988].

8 One effort to reach such understanding is being pursued in the program on "Dual-use technologies: Balancing economic and security interests in federal R&D investment strategies," being conducted by Professor Lewis Branscomb and colleagues at Harvard's Kennedy School of Government.

9 Except as noted, findings and data used in this paragraph are drawn from Jäger [1988].

10 Unless otherwise noted, material for this section is drawn from the U.S. National Aeronautics and Space Administration [NASA, 1986 and 1988].

11 Reliable data are available only for the mid-latitudes of the Northern Hemisphere. The quoted figure is for total column ozone in these latitudes and reflects the total decline over the entire period.

12 Excellent reviews are provided in World Resources Institute [1986]. The European perspective is summarized in a series of articles published in *Environment*, Nilsson and Duinker [1987], Prinz [1987], Dovland [1987], Sand [1987], and Hordijk [1988].

13 A full report of the methods and results of the Friibergh workshop, plus an evaluation of the exercise, have been published by the host organization, the Swedish Council for Planning and Coordination of Research [Svedin and Aniansson, 1987]. Refinements of the basic Friibergh scenarios, including a quantification of their basic trends, have recently been published by the IIASA [Anderberg, 1988].

14 Results of this workshop are being readied for publication by the author.

15 The material reported here was developed by Robert Dickinson of the National Center for Atmospheric Research, and Hank Shuggart of the University of Virginia, drawing on publications by Sioli [1984] and Salati [1987].

16 Examples, cited at the Laxenburg workshop by Professor H. Shuggart of the University of Virginia, include the fire-prone forests of the southern United States versus the southern hardwood forest; the sclerophylous fienboss heathland of the Cape of Good Hope versus the subtropical African rain forest; and the sclerophylous Eucalyptus forests of Tasmania versus the temperate rain forest.

17 Discussions on this scenario were initiated at the workshop by Paul Crutzen of the Max-Planck Institute for Chemistry, based in part on P. Crutzen [1987].

18 For a broader discussion of this treatment of policy analysis and management as "craft work," see Ravetz [1971], Wildavsky [1979], and Lindblom and Cohen [1979].

19 Exercises of this sort have been described under the term "free-form, manual games" in the American literature. See Goldhamer and Speier [1959], Brown and Paxson [1975], Brewer and Shubik [1979], Brewer [1986], and Allen [1987].

20 Thomas Schelling, private communication to the author, 1984.

CHAPTER 3

1 See OECD, *National Accounts*. The GNP figures are in current dollars with conversion according to exchange rates in the year cited.

2 Figures in purchasing power parities at 1981 prices are taken from the Centre d'études prospectives et informations internationales (CEPII).

3 Growth in Africa south of the Sahara is much slower.

4 Figures are from Chesnay [1987] and are expressed in 1975 dollars.

5 It must be remembered that technological progress can be hampered by social rigidities and ill-conceived macroeconomic policies.

6 On this topic, see the Cecchini report, which attempts to assess the impact on growth of establishing an integrated domestic market. For a synthesis of this report, see Jacque Delses [1988].

7 IIASA studies have shown, however, that freer trade in food products would have a favourable impact on the world economy, particularly on growth in the Third World.

8 As studies by A. Sen have conclusively shown.

9 This is clearly what happened in certain sectors after World War II with the rise of the United States as an economic power. Japan and Western Europe responded by attempting to create their own national industries in these sectors through subsidies.

10 In the sense of F. Braudel.

11 For a more in-depth discussion of this equation, see G. Lafay [1988].

CHAPTER 4

1 The empirical research reported in this paper has been undertaken in collaboration with Alan Chung and has been supported by the Social Sciences and Humanities Research Council of Canada. In revising the paper for publication, I have been aided by helpful comments and suggestions from several conference participants, especially Yoshihiro Tsurumi, Lars Osberg, and André Plourde. An earlier version of some of the material was previously part of a presentation at a pre-summit conference held at the University of Toronto. The proceedings of that conference are available in a special issue of *Canadian Public Policy*, February 1989.

2 Lesourne [1988] emphasizes the common feature of transportation and communications as networks linking nodes brought closer by technology but held further apart by several types of regulations designed in the first instance to protect local providers of equipment for these industries, or the industries themselves.

3 Psacharopoulos suggests that the increasing sophistication and expense of public education, coupled with increasing private demands, are likely to lead to more reliance on user-pay principles for education finance, especially in the light of high private returns available, and of the evidence that the already well-off are the major recipients of the benefits of education subsidies. Globalization is likely to accelerate these trends towards cost recovery, as countries, provinces, and even individual school boards find themselves facing worldwide demands for their educational spaces and products.

4 Maddison [1982] and Baumol [1986] have presented evidence of the long-run convergence (since 1870) in income levels for 16 OECD countries that are now among the richest in the world. De Long [1987] argues that this answer may have been due to choosing countries that are now rich, and finds that adding a number of "once rich" countries and allowing for possible measurement error in 1870 income substantially removes the evidence in favour of convergence. However, Helliwell, Sturm, and Salou [1985] find evidence of postwar catch-up among the seven largest industrial economies, all of which had relatively high incomes at the start of estimation in the mid-1960s. Helliwell and Chung [1988] find a weak correlation (with a negative sign, as the convergence hypothesis would imply) between initial income levels and 1973-83 growth, when the sample of countries includes all 89 countries for which comparable data are available, but strong support for the convergence hypothesis from 1960-85 productivity data for 109 industrial countries. These latter results are discussed later in this paper.

5 For example, Psacharopoulos [1988] reports much higher private and social returns to all levels of education in the developing countries than in the industrial countries (Table 2), and that there is still a large amount of this high-return investment left to be done, as illiteracy rates in 1985 were still 38 per cent in the developing countries, compared to only 2 per cent in the developed countries (Table 5).

6 In Helliwell and Chung [1988], productivity growth is represented by a Harrod-neutral measure of labour productivity, i.e., output per employee after allowing for a normal return on the aggregate stock of real capital.

7 Openness is measured by the ratio of total trade to real GNP, where total trade is the sum of real exports and real imports of goods and services, including capital services.

8 The estimation equations are reported in Tables 4.1 and 4.2 of Helliwell and Chung [1988] and are based on cross-section as well as pooled time series and cross-section regressions.

9 In particular, changes in the share of the total population that is of labour force age.

10 Increasing globalization has increased the urgency of tax harmonization efforts, at least according to Vogel [1988], Ross [1988], and Helliwell [1988*c*].

11 For example [Wood, 1988, p. 27], the U.N. voting patterns of the middle-power countries are less closely aligned with or against U.S. voting patterns than are those of either the larger or the smaller countries.

12 The corresponding regression is shown in Appendix A. The dependent variable is the residual from the equations explaining average productivity growth in terms of 1960 productivity levels and average 1960-85 changes in openness, as represented by the sum of real imports and exports, measured as a ratio to real GNP.

13 As shown in Appendix A, the estimated effects were 0.176 for productivity and 0.194 for real GNP, using the equations corresponding to Charts 4-5 and 4-6, and 0.232 for GNP and 0.167 for productivity using multivariate equations including convergence, openness, and cyclical factors, simultaneously. The fact that the effects are so similar from multivariate and sequential regressions illustrates that inflation and the other policy variable are not correlated with the convergence and openness variables.

14 This is true whether the public consumption ratios are used to explain the growth rate residuals, as in Charts 4-7 and 4-8, or are entered as separate variables in multivariate regressions, as in the final equations reported in Appendix A.

15 Our country coverage is slightly larger than that of Crouch, so for two countries for which data were missing the index was assumed to take average values. We also tested for the possibility, supported by some previous results, that the influence might be non-linear, but neither the level nor the quadratic term for the index was positively correlated with growth, either separately or together.

CHAPTER 5

1 The Macdonald Commission offers a cogent summary of the Canadian consensus in its report. See Royal Commission [1985, pp. 354-57].

2 For a discussion of these issues, see the Macdonald Commission report and its appendices.

3 See the Macdonald Commission report and its appendices. For a brief presentation, see Carmine Nappi [1985].

4 Thomas T. Schweitzer examines two scenarios that reflect reasonably well the possible impacts for Alberta. See Schweitzer [1983].

5 For a discussion of these issues, see Government of Canada [1987].

6 For a discussion of the Japanese experience, see Noburu Makino [1987].

7 The economist who is most closely identified with this view is Thomas J. Courchene. See, in particular, Courchene [1986].

8 For an analysis of the Canadian situation, see Leonard Dudley [1972].

CHAPTER 6

1 In August 1981, the seasonally adjusted national unemployment rate in Canada was 6.9 per cent, but over the next 19 months it almost doubled, reaching 12.6 per cent in March 1983.

2 In August 1981, 56.1 per cent of the working-age population was employed full-time, compared to 54.1 per cent in June 1988. The aggregate employment/population ratio has recovered to its 1981 level, due largely to an increase in involuntary part-time employment. In total, part-time employment has increased from 8.1 per cent of the working-age population in 1981 to 9.2 per cent in 1988. Less than one fifth of the total increase in part-time employment can be ascribed to shifts in the industrial structure of the economy towards the service sector. See Statistics Canada, *The Labour Force*, Cat. 71-001, May 1987.

3 In Toronto, unemployment was 5.0 per cent in 1979 and 4.5 per cent in 1987. In Newfoundland, unemployment rose from 15.4 to 18.6 per cent.

4 In 1981, 9.6 per cent of full-time equivalent jobs were in the forestry, fishing, mining, paper, wood, petroleum, or electrical power industries, but only 7.8 per cent in 1986. See Myles, et al. [1988].

5 From March 1981 to March 1986, the social assistance case load in Canada increased by 33 per cent, to 1,832,900 recipients [National Council of Welfare, 1987, p. 8].

6 See Wolff and Baumol [1988*a*], who decompose trends in the composition of employment in the United States over the years 1960-80.

7 See Lydall [1959] for a model where aggregate inequality is greater, the greater is the span of control of each individual supervisor.

8 The Southam Literacy Study classified individuals as "functionally illiterate" if they scored less than eight out of 10 on items testing real-world literacy skills (such as reading a bus schedule or calculating the bill for a restaurant meal).

9 Browning [1987] stresses the uncertainty that is involved in estimates of the marginal excess burden of taxation since uncertainty in estimates of the compensated elasticity of labour supply, the marginal rate of taxation, and the change in the progressivity of the tax structure with respect to average tax rates all interact. Relatively small variations in parameter values for these variables imply estimates of the marginal excess burden of taxation spanning a range from less than 10 cents to more than $3 per additional dollar of tax revenue raised (but clustered towards the low end of the range). Note, however, that a range of variation from 0.2 to 0.4 in the compensated elasticity of labour supply is used by Browning, while Killingsworth [1983, p. 193] reports estimates for men which span the range –0.08 to +1.0. For women, the range of estimates in the literature is far wider. The survey articles of Brown [1981], Keeley [1981], and Osberg [1986] independently opt for a "best-guess" estimate of the compensated elasticity of labour supply of 0.1. In short, one can plausibly argue that Browning [1987]: 1) understates the uncertainty involved in estimates of the marginal welfare cost of taxation; but 2) presents estimates considerably greater than some readings of the labour-supply literature would suggest.

10 Note that these unemployment rates are calculated on a *similar* basis to those of Canada. See OECD [1987*a*, p. 198].

11 Perron [1987] emphasizes efficient risk-sharing as underlying the social security programs and redistributive taxation characteristic of the welfare state. Varian [1980] provides a formal model.

12 Since there is some tendency in the literature [e.g., Lilien, 1982; Samson, 1985; Parkin and Bade, 1986] to redefine "full employment" so as to approximate actual unemployment, one needs some definition of the term. I believe there is strong empirical evidence against the Samson hypothesis [Osberg, 1988*d*]. By "full employment" I mean a state of the labour market in which the number of vacancies approximately balances the number of job searchers – in 1987, when actual unemployment was 8.9 per cent, Kapsalis [1988] estimated that this would occur at a national unemployment rate of 5.5 per cent. The NAIRU is, of course, a different concept, but the publicly available evidence also puts it substantially below current unemployment. Fortin's [1987] estimate of the NAIRU was 6.1 per cent.

13 Goodin and Dryzek [1987] argue, however, that the basis for the postwar expansion of the welfare state in the United Kingdom was in fact laid *during* World War II, when transfer payments became increasingly universalistic and centralized, and increased greatly in magnitude due to the necessity to mobilize popular support for the war effort.

14 Even at a relatively low "Okun's law" relationship of a 2.5-per-cent change in GNP to each 1-per-cent change in unemployment, a 1-per-cent decline in Canada's unemployment rate translates to over $15 billion annually in increased national output.

15 To take a specific example, Lazear [1979] presents a model where the firm's profit is maximized by offering an implicit contract of lifetime employment with mandatory retirement, followed by a pension. But implicit contract models depend upon a presumption of the continued existence of particular firms, hence the greater is the rate of bankruptcy, the less feasible are such contracts – witness the problems faced by the pensioners of Massey Ferguson. If the labour market were characterized by a few large, long-lived employers, then a firm's reputation would enforce its end of an implicit contract – but this is not feasible for the small business sector. In the 1990s, the growth of subcontracting and decreased economies of scale may imply an increasing relative importance of the small business sector, but this also increases the risks to which employees are subject, if the welfare state is limited in extent. When the welfare state offers medical insurance, secure pension benefits, and so on, small business can compete, in terms of total compensation, with corporate welfarism – reducing the reluctance of labour to move between these sectors.

16 See Leman [1980] for a discussion of the role which jurisdictional disputes between the federal and provincial governments played in killing the Lalonde proposals for a two-tiered negative income tax system in the 1970s in Canada.

17 And as the fate of the Forget Commission recommendations indicate, UI reform proposals will fail if replacement programs are not specified. Disentanglement of the social insurance and social assistance functions of the welfare state is not, *in itself*, an issue which has much support.

18 See Courchene [1987, p. 16] for an opposing view.

19 From Olson [1983, p. 90]:

> Sweden's and Norway's main special-interest organizations are highly encompassing, especially in comparison with those in Great Britain and the United States, and probably are more encompassing than those in any other democracies. For most of the postwar period, for example, practically all unionized manual workers in each for these countries have belonged to one great labour organization. The employers' organizations are similarly inclusive.

20 This paragraph borrows heavily from Lindbeck [1986].

CHAPTER 10

1 J. M. Keynes to President Roosevelt in an open letter, 1933.

2 William N. Parker [1986] provides an excellent summary of the intellectual and ideological traditions which have infused modern North American economic thought.

3 For example, a classic of its day, see Okun [1975].

4 For a different approach to the environment issue that includes this among other considerations, see Stewart [March 1988].

CHAPTER 11

1 Statistics Canada, as quoted in *The Globe and Mail*, 21 October 1988 – a different data series, obviously, than that referred to in Summers and Hoskins [1988].

2 My discussion of Canada's adaptation to international competitive forces deliberately excludes two questions: first, I do not discuss the possibilities or the consequences of a protectionist response in Canada, or elsewhere; and second, because I am addressing the question of global trade, I have not discussed the Canada-U.S. Free-Trade Agreement.

3 The data in this paragraph are drawn from Professor J. Lesourne's paper (see Chapter 3).

4 See MacNeill [1987] for most of this paragraph. Mr. MacNeill was Secretary General of the World Commission on Environment and Development (the Brundtland Commission).

5 The "override" of the language rights by the National Assembly of Quebec in late 1988 – an override of rights which is provided for in the Charter – has opened up the bilingualism issue once again.

6 I am talking about a reformed Senate in which the smaller provinces would have a substantially increased representation relative to Ontario and Quebec, in which the Senators would be elected, and in which the Senate's legislative powers would be sufficient to cause the Senate to be seen to be a truly legitimate representative of provincial and regional interests.

7 One must bear in mind, in this connection, that the Meech Lake Accord provides that future appointments to the bench of the Supreme Court of Canada would be made from lists provided by provincial premiers.

8 When I speak of the private sector, I include both business and labour.

9 There is no inference here that the responsibility of government for public policy decisions should be diluted. An advisory or influential role does not relieve the government of its responsibility to decide, nor of its accountability for what it decides.

10 The "ingredients" of production referred to include again advances in technology, improvements in education and research, design and innovation, the facility with which intersectoral and interregional adjustments are made, the flexibility with which labour market adjustments are effected, and so on.

11 Industry, Science and Technology Canada, *Selected Science and Technology Statistics, 1988*. The ratio being referred to is gross expenditure on R&D in relation to the GDP, as developed and used by the OECD.

12 Data drawn from Statistics Canada, *Education in Canada: A Statistical Review*, Cat. 81-229, and *Advanced Statistics of Education*, Cat. 81-220, and expressed in 1981 dollars.

13 There were, of course, many notable policy antecedents.

14 These data were derived from the Public Accounts of Canada and from the Estimates for 1988-89.

15 The (Macdonald) Royal Commission on Economic Union and Development Prospects for Canada [1985], and the (Forget) Commission of Inquiry on Unemployment Insurance [1986].

16 Data provided by James MacNeill, General Secretary of the World Commission on Environment and Development, and President of MacNeill Associates.

CHAPTER 12

1 That does not, however, preclude the possibility that, for example, monetary policy might cancel the macro effects of fiscal policy by controlling nominal GNP.

2 That belief need not preclude the possibility that, for example, the division of any given change in nominal GNP into real effects and price effects might depend on whether or not the change is anticipated.

3 By monetary policy I mean, for example, an increase in base money paid out in lump-sum transfers. Open-market swaps of money for bonds are often (not always) non-neutral because they change interest rates. Monetary non-neutrality can also be rationalized by distribution effects; but these are typically considered unimportant and are rarely the focus of the debate.

4 For this reason, I recently proposed that we rename it "pornographic unemployment." See Blinder [1988].

5 See Lucas [1987] for an example. For a rebuttal, see Blinder [1987*b*].

6 I include myself here. See Blinder [1987*a*, Chapter 2, and 1988].

7 I would not want to place the last of these beyond the realm of positive economics. There is a huge literature on the social costs of unemployment and inflation and many Keynesians, like myself, have concluded from this evidence that the costs of low inflation are both small and readily avoidable. Nonetheless, value judgments are still involved in the trade-off between unemployment and inflation.

8 The one prominent exception was mentioned above: the old debate over whether or not the demand for money is sensitive to interest rates. This has long been a dead issue.

9 The "price" may be multifaceted. Complicated contractual agreements are allowed within the new classical approach.

10 I do not intend to join the philosophical debate over whether there is such a thing as objective scientific evidence.

11 One example is the effects of anticipated future changes in policy.

12 It should be noted that some new classicals disagree and see rational expectation as much more fundamental to the debate.

13 For the rudimentary theory, see Phelps [1978] and Gordon [1975]. Phelps' ideas on the subject were first presented at an American Enterprise Institute meeting in April 1974; Gordon's were first offered at a meeting of the Savings and Loan Association that same month. Already in January 1974, Princeton graduate students were being asked on examination to analyse supply shocks in Keynesian models.

14 Some examples are Ando and Kennickell [1983], B. Friedman [1983], Gordon [1985], and Perry [1983].

15 Though Lucas' paper was published only in 1976, it had been given at a Carnegie-Rochester conference in April 1973 and was well known in academic circles years before it was published.

16 Blinder [1979 and 1982] traces the relevant history for the United States and supports the statement, which holds even though the worldwide boom of 1972-73 was surely demand-induced.

17 Thomas Sargent and Lars Hansen led in developing the new econometric methods. Sargent always referred to it as "a technology."

18 Symmetrically, a conservative might argue that Keynesian ideas could only have caught on in a milieu (like that of the Great Depression) in which left-wing ideology was ascendant. Neither statement says anything about the validity of either doctrine.

19 See, for example, Stockman [1986, p. 72]. For a while, the Treasury also found the Barro debt-neutrality view congenial.

20 In fact, two of the best-known implications of new classicism were "policy irrelevance" results: that debt-financed tax cuts have no effects and that (anticipated) changes in the money stock have no real effects.

21 For a review, see Barro [1981*a*].

22 The story is even worse than this because money growth did not actually decelerate, except fleetingly, in either country. But that has to do with financial innovation and the collapse of the money-demand equation, which is as much a problem for Keynesian theory as for new classical theory.

23 In the case of the 1973-75 recession, Blinder [1981] points out that "unanticipated money," as defined empirically by Barro and Rush [1980], does not come close to explaining the recession. I know of no similar calculation for the 1980s, but it would also not come close since declining velocity growth, not declining money growth, made money tight in 1981-82.

24 The U.S. corporate tax cuts enacted in 1981 have been suggested as an explanation. But there is controversy about this. See Blanchard and Summers [1984], Niskanen [1988], and Bosworth [1985].

25 Lovell [1986] offers a convenient summary of many studies, one of them by Muth [1985].

26 For a longer treatment, see Blinder (forthcoming).

27 Actually, Akerlof and Yellen [1985] appealed to "near rationality" rather than to fixed costs. But the two amount to essentially the same thing. Also, the costs of changing prices do not have to be exclusively fixed to make the theory work.

28 That is what Akerlof and Yellen [1985] do.

29 A common example from macroeconomics: models with both wealth effects and interest elasticities normally deliver ambiguous signs for the effects of monetary policy.

30 Things are quite different in the long run, where the ideas of "academic scribblers" often have profound influence on policy.

31 It does not, however, say whether it was the Keynesians or new classicals who let ideology influence their research more.

32 See, for example, the papers collected in Lucas and Sargent [1981].

33 This is a major theme of Blinder [1987*a*].

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ROSALIE SILBERMAN ABELLA

Rosalie Abella graduated from the University of Toronto Law School in 1970. She was admitted to the Bar of Ontario two years later. After five years of private practice, she became a Member of the Ontario Public Service Labour Relations Tribunal, Commissioner of the Ontario Human Rights Commission, a Member of the Premier's Advisory Committee on Confederation (Ontario) and for 11 years, was a Judge in the Ontario Provincial Court (Family Division).

Perhaps best known for her work as Sole Commissioner of the Royal Commission on Equality in Employment, Ms. Abella has also served as the Chairman of the Study on Access to Legal Services by the Disabled.

In addition to holding Directorships with the Institute for Research on Public Policy, the International Commission of Jurists (Canadian Section), and the Canadian Institute for the Administration of Justice, Ms. Abella now chairs the Ontario Labour Relations Board.

The author of four books and many articles, she holds Honorary Doctorates of Law at Queen's, Dalhousie, and McMaster Universities, the University of Windsor, and the University of Ottawa.

ALAN STUART BLINDER

Dr. Blinder obtained his A.B. (Economics) Summa Cum Laude from Princeton University in 1967. He subsequently received an M.Sc. (Economics) from the London School of Economics and his Doctorate from the Massachusetts Institute of Technology in 1971.

He was elected Vice-President of the American Economic Association and is currently a member of that organization's Committee on Honors and Awards. Dr. Blinder has also sat on a number of editorial boards, including those of *The Journal of Economic Literature*, the *Journal of Monetary Economics* and the *Journal of Public Economics*.

The author of more than 100 articles and columns in *Business Week*, *The Boston Globe*, the *Washington Post* and *Newsday*, he has written six books, presented many discussion papers, and prepared Congressional testimonies for United States House and Senate Committees. A Fellow of the Econometric Society, he also belongs to the International Society for Inventory Research and is a Member of the Brookings Panel on Economic Activity.

Dr. Blinder has taught at universities in the United States, Austria, Sweden, and Israel. He is currently the Chairman of the Department of Economics at Princeton University.

WILLIAM C. CLARK

William C. Clark received his Bachelor degree from Yale University, graduating Magna Cum Laude with "honors of exceptional distinction" in Biology. His postgraduate studies led to a Doctorate in Zoology from the University of British Columbia.

A member of the faculty at Harvard University's John F. Kennedy School of Government, Dr. Clark is active in the Program in Science, Technology and Public Policy, and in the Centre for Science and International Affairs.

Prior to joining Harvard, he headed the Program on Sustainable Development of the Biosphere at the International Institute for Applied Systems Analysis (IIASA) in Austria. He has also worked at the Institute for Energy Analysis in Oak Ridge, Tennessee and with the Ecological Policy Group at the University of British Columbia.

Dr. Clark has held consultancy positions with UNEP, UNESCO, the World Bank, The United Nations University, the Economic Council of Canada, Environment Canada, and the U.S. General Academy of Science's Committee on Global Change.

His current focus is on the long-term, large-scale interaction of economic development with the environment. With Gilbert White and Alan McGowan, he presently edits *Environment* magazine.

In 1983, Dr. Clark was named a MacArthur Prize Fellow for "achievements giving evidence of originality, dedication to creative pursuits, and capacity for self-direction."

MARCEL CÔTÉ

Marcel Côté obtained his B.A. at the Collège de Rouyn and B.Sc. in Physics at the University of Ottawa. He received an M.Sc. (Economics) from Carnegie Mellon University in Pittsburg, Pennsylvania, in 1969.

Mr. Côté, who was recently made a Fellow at Harvard University's Centre for International Affairs, taught at the University of Sherbrooke and the Université du Québec à Montréal in the early seventies. In 1975, he founded SECOR, where he is presently Senior Partner. SECOR is a Montréal management consulting firm that specializes in strategic analysis for both the private and public sectors.

Mr. Côté's work in the field of economics has been in the area of regional development and economic growth. He is the coauthor, with Roger Miller, of *Growing the Next Silicon Valley* [Lexington Press, 1986] and is presently working on his next book, *Economic Growth: A View from the Garden.*

THOMAS J. COURCHENE

Thomas J. Courchene was educated at the University of Saskatchewan and Princeton University, from which he obtained a Ph.D. in 1967. From 1965 to 1988 he was a Professor of Economics at the University of Western Ontario. For 1987-88 he occupied the John P. Robarts Chair in Canadian Studies at York University. Currently, Dr. Courchene is the Director of the new School of Policy Studies at Queen's University, Kingston, Ontario, where he holds the Stauffer-Dunning Chair and is a member of the Department of Economics, the School of Public Administration, and the Faculty of Law.

The author of numerous books and articles on Canadian economic policy issues, Dr. Courchene has written several studies for the C. D. Howe Institute, including a four-volume series on Canadian monetary policy, *Ontario's Proposal for the Canadian Securities Industries*, and *Social Policy in the 1990s: Agenda for Reform.*

Dr. Courchene was Chairman of the Ontario Economic Council from 1982 to 1985, has been a Senior Fellow of the C. D. Howe Institute since 1980, is a Fellow of the Royal Society of Canada and a member of the Economic Council of Canada.

PIERRE DANSEREAU

Dr. Dansereau obtained his B.A. at collèges Sainte-Marie and Sacré-Coeur. He studied Law at the Université de Montréal and obtained a B.Sc. in Agriculture at l'Institut Agricole d'Oka. Subsequent to a two-year varied curriculum at the Université de Paris, he received his D.Sc. at the Université de Genève in 1939.

He has taught at many institutions, including McGill, Montréal, and Québec, the Universities of Brazil and Sao Paolo, Columbia, Laval, Concordia, the University of Lisbon and a number of others.

Over the years, Dr. Dansereau has sat on many commissions and councils in Canada and abroad. Owing to his deep involvement with agriculture and preserving the environment, he has won numerous awards, was named a Companion of the Order of Canada, and a Chevalier de l'Ordre national du Québec, and received the Massey Medallion of the Royal Canadian Geographical Society.

Dr. Dansereau, who speaks French, English, Portuguese, and Spanish, holds honorary doctorates at 11 universities. In 1987, he was appointed Président du Conseil de l'Ordre national du Québec.

JEANNINE DAVID-MCNEIL

Mrs. David-McNeil obtained her undergraduate degree at l'École des hautes études commerciales in Montréal and her doctorate in Economics at the Université de Paris.

She has specialized in the field of labour economics, concentrating her research on the effects of technological progress on labour demand and on the assessment of adult training programs in Quebec. She has also acted as a research consultant on labour adjustment in Montréal West and on projections of labour demand in the petrochemical industry.

She was responsible for two studies commissioned by the Québec Ministry of Employment and Labour and the federal Department of Employment and Immigration on problems and prospects in the hotel and mining industries in Quebec.

Mrs. David-McNeil has been a member of the federal Task Force on Employment and Microelectronics, and of the Commission on the Impact of Microelectronics on Employment and Labour for the Québec Socio-Economic Conference on Microelectronics. She participated in the Beaudry Commission on Labour legislation. Since October 1986, Mrs. David-McNeil has been Chairman of the Consultative Committee on Access to Equality in the Private Sector. She is also a Member of the National Advisory Board on Science and Technology (NABST).

A. RODNEY DOBELL

Dr. Rodney Dobell received his B.A. and M.A. from the University of British Columbia and his Doctorate in Economics from the Massachusetts Institute of Technology.

An Assistant Professor of Economics at Harvard until 1968, he then moved to the University of Toronto as Professor of Political Economy. From U. of T., Dr. Dobell joined the Treasury Board Secretariat as Deputy Secretary (Planning), then the OECD in Paris, where he was Director, General Economics Branch. He has worked as Research Director on two Parliamentary Task Forces and was the Chairman of the Joint Productivity Committee for the B.C. Government/B.C. Government Employees' Union.

From 1977 to 1984, Dr. Dobell was Professor and Director, School of Public Administration at the University of Victoria. Since 1984, he has been the President of the Institute for Research on Public Policy.

The author of four books and many articles, Dr. Dobell's current interests lie in the formation and evaluation of public policy, methods of policy analysis, and the philosophy of administration.

RICHARD B. FREEMAN

Dr. Richard Freeman obtained his undergraduate degree from Dartmouth College and his Doctorate in Economics from Harvard University.

He has been a Fairchild Distinguished Research Professor at the California Institute of Technology, Assistant Professor at Yale University and the University of Chicago, and Assistant and Associate Professor at Harvard University.

A labour specialist, Dr. Freeman has published many articles and 10 books, some of which have been translated into Spanish and Japanese. His publication *What Do Unions Do?* with James Medoff won the Management Association Prize as Best Book in 1985, and his *Market for College-Trained Manpower* was named one of the "Outstanding Books in Industrial Relations and Labor Economics, 1970-1979."

Richard Freeman is currently Professor of Economics at Harvard University and Program Director for Labour Studies, National Bureau of Economic Research.

JOHN F. HELLIWELL

Dr. Helliwell won a Rhodes Scholarship at the University of British Columbia in 1959. He subsequently attended St. John's College and later Nuffield College, Oxford, where he obtained his Doctorate in Economics.

His main interests are national and international quantitative economics, comparative macroeconomics, international finance, taxation and monetary policy, and natural resources and energy.

For the last 21 years, Dr. Helliwell has been a Professor of Economics at UBC. He has travelled extensively, consulting with governments and educational institutions in Great Britain, France, Sweden, China, Japan, Australia, and New Zealand.

He is a former Managing Editor of the *Canadian Journal of Economics* and former President of the Canadian Economics Association. He has carried out research projects for the Royal Commission on Banking and Finance, the Royal Commission on Taxation, and the Royal Commission on the Economic Union and Development Prospects for Canada (the Macdonald Commission).

Dr. Helliwell is a Fellow of the Royal Society of Canada and an Officer of the Order of Canada.

ALBERT W. JOHNSON

Albert Johnson has had a distinguished career in the Public Service of Canada and in broadcasting. He has a B.A. in Political Science and History from the University of Saskatchewan, an M.A. in Public Administration, from the University of Toronto, an M.P.A. in Public Administration, and a Ph.D. in Political Economy and Government from Harvard.

Dr. Johnson has been President of the Canadian Broadcasting Corporation, Deputy Minister of National Welfare for the Government of Canada, Economic Advisor to the Prime Minister on the Constitution, and Secretary of the Treasury Board. He was also Deputy Provincial Treasurer in the Government of Saskatchewan.

Honours include the Order of Canada, honorary Doctorates from the University of Saskatchewan, the University of Regina, and Mount Allison University, the Vanier Medal from the Institute of Public Administration of Canada, and the Gold Medal from the Professional Institute of the Public Service of Canada.

Dr. Johnson has published extensively and has sat on a number of Boards. He currently holds the position of Professor at the University of Toronto's Department of Political Science.

JOHN JAMES KIRTON

John Kirton attended the University of Toronto, Carleton University, and Johns Hopkins, where he obtained his Doctorate.

Dr. Kirton has served on the Canadian Council on International Relations and is a member of the Canadian Institute for International Affairs and Canadian Professors for Peace in the Middle East. A Trinity College and Woodrow Wilson Fellow, he was also a Research Fellow in the Institute for International Relations, University of British Columbia.

A co-author of *Canada as a Principal Power*, co-editor of *The International Joint Commission Seventy Years On*, Dr. Kirton has also edited *Canada, the United States and Space*, and acted as Associate Editor for *Middle East Focus*.

John Kirton is currently Associate Professor of Political Science at the University of Toronto.

THOMAS A. KOCHAN

A specialist in Industrial Relations, Thomas Kochan obtained his Bachelor of Business Administration and his M.Sc. and Doctorate in Industrial Relations at the University of Wisconsin. His major field is organizational behavior and personnel; his minors, unions and collective bargaining, and manpower resources.

Currently a Professor of Industrial Relations at the Sloan School of Management, Massachusetts Institute of Technology, Dr. Kochan has also taught at Cornell University's School of Industrial and Labor Relations. In addition, he has served as consultant to the Secretary of Labor in the United States Department of Labor's Office of Policy Evaluation and Research.

Thomas Kochan has published a number of books and many articles on Industrial Relations. On the Editorial Boards of the *Academy of Management Journal* and *Industrial Relations*, he has also served as a third-party mediator, fact-finder, and arbitrator, and advises a variety of labour-management committees and groups.

Dr. Kochan's research has covered a wide range of topics related to collective bargaining in both the public and private sectors. He is a Member of the Industrial Relations Research Association, the Society of Professionals in Dispute Resolution, the Academy of Management, the International Society for Labor Law and Social Security, the Labor Guild of Boston, and the American Arbitration Association.

JACQUES FRANÇOIS LESOURNE

Jacques Lesourne is currently Professor of Industrial Economics and Statistics at the Conservatoire National des Arts et Métiers in Paris.

Mr. Lesourne has served as President of METRA and SEMA International (a European group of consulting firms), Director of the INTERFUTURES project at the OECD, Chairman of the French Association for Operations Research and Computer Science, the Employment Committee for the preparation of the 8th French Plan, and the Association française de sciences économiques. He is currently President of the International Federation of Operational Research Societies and a Member of the Council of the European Economic Association.

Mr. Lesourne has published numerous articles and a dozen books, including *Economic Technique and Industrial Management, Modèles de croissance de l'entreprise, Les systèmes du destin, Les mille sentiers de l'avenir, Soirs et lendemains de fête, L'entreprise et ses futurs*, and *Éducation et société demain.*

H. IAN MACDONALD

Ian Macdonald received a B.Com. degree from the University of Toronto and was a Rhodes Scholar at Oxford University where he obtained his M.A. and his B.Phil. He then returned to U. of T. to lecture in Economics. He became an Assistant Professor and was also Dean of Men at University College.

Subsequent activities included work with the Ontario Government as Chief Economist, Deputy Treasurer, Deputy Minister of Treasury and Economics, and Deputy Treasurer and Deputy Minister of Economics and Intergovernmental Affairs. In 1974, Mr. Macdonald received his LL.D from the University of Toronto and was named President of York University, where he is now President Emeritus, Professor of Public Policy and Economics, and Director of York International.

Mr. Macdonald sits on the Boards of a number of Canadian and international companies and institutions. He is President of the Canadian Rhodes Scholars' Foundation and Canadian Chairman of the Fund-Raising Campaign for the 75th Anniversary of the Association of Commonwealth Universities.

Mr. Macdonald has received the Governor General's Medal, the Centennial Medal, the Silver Jubilee Medal, and the Citation of Merit, Court of Canadian Citizenship. He is an Officer of the Order of Canada and a Knight of Grace of the Order of St. Lazarus in Jerusalem.

CHARLES WILLIAM MAYNES

Mr. Maynes graduated Magna Cum Laude in History from Harvard University in 1960. Elected to Phi Beta Kappa, he was awarded a Rhodes Scholarship and studied at Oxford University with first class honours in Politics, Philosophy, and Economics.

For the next 10 years, Mr. Maynes worked with the United States' Foreign Service. After an initial assignment in arms control and disarmament, he was transferred to Laos, working as chief non-project economist in the AID mission. After intensive Russian language study, he was assigned to Moscow as an Economic/Commercial Officer.

Back in Washington, Mr. Maynes received a Congressional Fellowship from the American Political Science Association, and worked in Congress for a Democratic Senator and a Republican Congressman. He then joined the Carnegie Endowment for International Peace in New York as its Director of International Organizations. In 1973 he became its Secretary. Four years later President Carter appointed him Assistant Secretary of State for International Organization Affairs.

Mr. Maynes is a Member of the National Academy of Public Administration, the Council on Foreign Relations, the International Institute for Strategic Studies, the Washington Institute of Foreign Affairs, and the United Nations Association. A recipient of the State Department Meritorious Service Award, he speaks English, French, and Russian.

Mr. Maynes has written extensively on U.S. foreign policy for international affairs journals and major American newspapers. Currently, he is the editor of *Foreign Policy.*

KENNETH HAROLD NORRIE

Kenneth Norrie obtained his undergraduate degree at the University of Saskatchewan and his postgraduate degrees at Yale.

Dr. Norrie, who wrote his dissertation on "The Canadian National Policy and the Wheat Economy," has been a visiting associate professor at Queen's University and was seconded to the Royal Commission on the Economic Union and Development Prospects for Canada from 1983 to 1985. He currently teaches Economics at the University of Alberta.

As Editor of *Canadian Public Policy/Analyse de politiques* he is also a member of the Executive Council, Canadian Economics Association. He sits on the editorial board of *Prairie Forum* and *The Canadian Journal of Regional Science*, is a Member of the Advisory Council of the C. D. Howe Institute, and is Past Chairman of the Economic History Committee of the Canadian Economics Association.

Many of Dr. Norrie's articles and books cover the western Canadian perspective, particularly in agricultural and energy-related fields.

Lars Spencer Osberg

Dr. Osberg, Professor of Economics at Dalhousie University, obtained his Honours B.A. at Queen's University and his M.Phil. and his Ph.D. at Yale. His dissertation was entitled "A Structural Approach to the Distributions of Earnings."

As an undergraduate, he also studied at the London School of Economics and Political Science. He has received Fellowships from the Social Sciences and Humanities Research Council, the Canada Council, Queen's, and Yale. Currently a member of the Executive of the Canadian Economics Association, the Association for Research in Income and Wealth, the editorial board of the *Review of Income and Wealth*, and the American Economic Association, he has held many consultative posts with both the private and public sectors in Canada, the United States, Bangladesh, and Tanzania.

Dr. Osberg, who speaks English and French, has also lectured at the University of Western Ontario. He became a Member of the High Table, King's College, Cambridge in 1983-84. He has published two books, with one more now at press and another in preparation, and dozens of articles dealing with income distribution and labour market issues.

Sylvia Ostry

Sylvia Ostry obtained her Doctorate in Economics from McGill University in 1954. She has since been awarded honorary doctorates from 17 universities. In 1978 she was named an Officer of the Order of Canada, and in 1987 she received the Outstanding Achievement Award from the Government of Canada.

Dr. Ostry has taught labour and manpower economics at four Canadian universities and was a Research Officer at the University of Oxford Institute of Statistics in the late 1950s and early 1960s. She has authored and co-authored over 70 publications covering a range of empirical and policy-analytic subjects. Most recently, she and Michael Artis co-authored *International Economic Policy Coordination.*

In 1969, Dr. Ostry was appointed Director, Economic Council of Canada. She was appointed Chief Statistician of Canada in 1972 and, in 1975, she became Deputy Minister, Consumer and Corporate Affairs Canada. Dr. Ostry became Chairman of the Economic Council of Canada in 1978. Appointed Deputy Minister of International Trade and Coordinator for International Economic Relations in 1984, she directed the work of the Department of External Affairs with respect to trade promotion, trade development, and trade policy. She was subsequently appointed Canada's Ambassador for Multilateral Trade Negotiations and Personal Representative of the Prime Minister for the Economic Summit.

Dr. Ostry is now a Senior Research Fellow at the University of Toronto and the Volvo Distinguished Visiting Fellow at the Council on Foreign Relations in New York.

Gilles Paquet

Gilles Paquet received his B.Phil., a B.Sc. Soc., and a Masters in Economics from Laval University. His doctoral studies were conducted at Queen's and his postdoctoral Studies at the University of California.

Currently a Professor in the Faculty of Administration at the University of Ottawa, he is also Scholar-in-Residence at the Institute for Research on Public Policy. A Past President of the Social Sciences Federation of Canada and l'Association Canadienne-française pour l'avancement des sciences (ACFAS), Mr. Paquet has chaired and sat on the Boards of many prestigious Councils and Associations.

In addition to his work at the University of Ottawa, he was Treasurer of the Royal Society of Canada. Mr. Paquet has won a number of awards and fellowships, including the Médaille Jacques Rousseau and the OCUFA Teaching Award.

Each week for the past 10 years, Mr. Paquet has shared responsibility for a two-hour public affairs program called "Le magazine économique" on the national A.M. network of Radio-Canada.

George Post

George Post was educated at Queen's University and at Northwestern University in Chicago.

Mr. Post was appointed the Federal Economic Development Coordinator for Ontario in September of 1985. Prior to this, he was Associate Secretary to the Cabinet and Deputy Clerk of the Privy Council, with particular responsibility for senior personnel matters.

Between 1978 and 1985, Mr. Post served as the Deputy Minister of the Department of Consumer and Corporate Affairs. From 1975 until 1978 he was a Director of the Economic Council of Canada and was the Acting Chairman of the Council for two years. Before joining the Council he was the Assistant Secretary to the Cabinet (Economic Policy) in the Privy Council Office.

Mr. Post joined the Research Department of the Bank of Canada in 1962 and held various positions in the bank before moving to the federal civil service in 1972.

George Psacharopoulos

Dr. Psacharopoulos obtained his B.A. in Economics at the Athens School of Business and Economics and received his Masters and his Doctorate in Economics from the University of Chicago.

His chosen fields are the economics of education, educational planning and human resources, economic development, labour economics, and microeconomic theory and applications.

A winner of the Outstanding Scholarship Award, Comparative and International Education Society, he has lectured at the London School of Economics, the University of Chicago, and the University of Hawaii, and has been an External Examiner for the Open University.

Dr. Psacharopoulos has held consultancy positions with the World Bank, UNESCO, OECD, ILO, USAID, and the State of Hawaii. His country advisory experience ranges from Western Europe to North and Central Africa, the United Kingdom, South America, and Indonesia.

Dr. Psacharopoulos speaks English, French, Spanish, and Greek, and has published extensively in each of those languages, as well as German, Hungarian, Portuguese, Arabic, and Chinese.

He is currently Chief, Human Resources Division, Technical Department, Latin America and Caribbean, at the World Bank in Washington, D.C.

ANDRÉ RAYNAULD

André Raynauld received his Doctorate in Economics from l'Université de Paris in 1954.

His main research interests are competition policy and the regulation of monopolies, financial markets, macroeconomic theory, and economic growth and development.

A former Chairman of the Economic Council of Canada, Dr. Raynauld has received many awards and distinctions, among them Officer of the Order of Canada, the *Prix de Carrière* of the Conseil du patronat du Québec, a Walter Levy Fellowship on the Council on Foreign Relations, Inc. in Boston, and Honorary Doctorates from the University of Ottawa and from the Université de Sherbrooke. He is also a Member of the Royal Society of Canada and a former MNA for Outremont, Québec.

Among other past activities, he was a Member of the Royal Commission on Bilingualism and Biculturalism, a Special Advisor to the Prime Minister on an official mission to France, Belgium, and the EEC, and a Member of the Executive Committee of the Société Radio-Canada. He is also a former President of the Canadian Economics Association and Associate Editor of the *Canadian Journal of Economics and Political Science* and the *Canadian Journal of Economics*.

Dr. Raynauld is currently a Professor of Economics at l'Université de Montréal.

W. CRAIG RIDDELL

A graduate of the Royal Military College in Kingston, Ontario, Graig Riddell obtained his Masters and Doctorate in Economics at Queen's University.

The author of numerous books and articles, Dr. Riddell has also sat on many committees and served on the editorial board of the *Canadian Journal of Economics* and as Associate Editor of *Canadian Public Policy*. During 1980-81, he was a National Fellow at the Hoover Institution, Stanford, California.

He is currently a Member of Statistics Canada's Advisory Committee on Labour Statistics, a Member of the Editorial Board of *Canadian Public Policy*, and Associate Member, Institute of Fiscal and Monetary Policy and Foundation for Advanced Information and Research, Tokyo, Japan.

Dr. Riddell has served as a consultant to both federal and provincial government bodies and worked as Research Coordinator with the Royal Commission on the Economic Union and Development Prospects for Canada [1983-85].

Having taught at Queen's University and the University of Alberta, he is currently a Professor of Economics at the University of British Columbia.

RICHARD E. B. SIMEON

Richard Simeon obtained an Honours B.A. at the University of British Columbia before moving on to Yale, where he acquired his Doctorate in Political Science.

He has taught at Queen's University, Kingston, since 1968, in the Department of Political Studies and the School of Public Administration, of which he is now the Director. He was Director of the Institute of Intergovernmental Relations at Queen's before spending two years as a Research Coordinator (Institutions) for the Royal Commission on the Economic Union and Development Prospects for Canada. He has had visiting appointments at the University of British Columbia, Essex University, and the Australian National University.

Dr. Simeon has been a Board Member of the Ontario Advisory Committee on Confederation, Program Chairman, Canadian Political Science Association, an Associate Editor of *Canadian Public Policy*, and a member of the Research Council, Canadian Institute for Advanced Research.

Dr. Simeon is the author of numerous books and papers on federalism and public policy.

DAVID W. SLATER

David Slater obtained his B.A. at Queen's and his M.A. and Ph.D. at the University of Chicago.

After serving overseas during World War II, Dr. Slater taught at Queen's University and at Stanford. In 1952, he returned to Queen's where he held a series of positions leading to Professor and Dean of the School of Graduate Studies and Research.

Dr. Slater then became a Director General at the Department of Finance. He subsequently joined the Economic Council of Canada where he was Director and then Chairman. Dr. Slater has also been a Director of the Bank of Canada and of the Industrial Development Bank, a Member of The Canada Council and of the Province of Ontario's Advisory Committee on University Affairs, and Editor of *The Canadian Banker*.

Most recently, Dr. Slater has been the Chairman of the Ontario Task Force on Insurance, and Special Advisor, Public Sector Pension Consultations for the Province of Ontario.

His main current research is a book-length study of the domestic aspects of the economic and financial history of Canada during the Second World War, as seen in the work of the Department of Finance.

ARTHUR J. R. SMITH

Dr. Arthur Smith obtained his undergraduate degree at McMaster University and his Masters and Doctorate in Economics at Harvard. He is an Honorary Doctor of the University of Calgary and holds an Honorary Doctor of Law at McMaster.

A former Director and then Chairman of the Economic Council of Canada, Dr. Smith has had a very distinguished career. To mention but a few of his positions, he has been President of the Conference Board of Canada, Vice-President of INCO, President of the National Planning Association, Chairman of the Advisory Committee on Labour Statistics, Statistics Canada, and CEO of the Canadian Labour Market and Productivity Centre.

Dr. Smith has sat on dozens of Committees, Councils and Boards. A member of a number of institutions and associations, he is currently a Visiting Professor at Brock University. In addition, he is President of his own consulting firm.

IAN A. STEWART

Dr. Ian Stewart obtained his Bachelor's degree from Queen's University, his Masters from Queen's and Oxford, and his Doctorate from Cornell.

After teaching at Dartmouth College, Dr. Stewart moved to the Bank of Canada in 1966 to head an econometric modelling team. He served as Associate Chief of the bank's Research Department, then joined the public service as Special Advisor to the Treasury Board Secretariat. Subsequently he served as Senior Economic Advisor to the Department of Energy, Mines and Resources (EMR), Assistant Secretary to the Cabinet Committee on Economic Policy, and Economic Advisor to the Privy Council. He was Deputy Minister of EMR and of the Department of Finance, and advised the Ministry of State for Economic and Regional Development and the Department of Regional Industrial Expansion.

Dr. Stewart has received a number of scholarships and Fellowships and has published various works on economic and econometric research and economic policy.

From 1985 to 1986 he served as Chairman of the Canada Mortgage and Housing Corporation. Most recently, Dr. Stewart has been a Skelton-Clark Fellow in Political Studies at Queen's in Kingston.

YOSHIHIRO (YOSHI) TSURUMI

A consultant to many governments, the International Monetary Fund, and various multinational firms, Dr. Yoshihiro Tsurumi specializes in economic development, industrial policies, business strategies, and the international transfer of technology.

His particular interest lies in comparative studies of U.S.-Japan corporate and industrial systems, and U.S.-Japan trade and investment.

The author of 12 books and over 90 articles in leading academic journals, he also regularly contributes articles and interviews to *The New York Times, International Economic Review, The Economist, Yomiuri Shimbun, Fortune, Newsweek, Forbes*, and many other publications. His book, *Sogoshosha*, aided the enactment of the United States Export Trading Company Act of 1982.

Dr. Tsurumi holds Bachelor's and Master's degrees in economics from Keio University, and he obtained his M.B.A. and D.B.A. degrees from Harvard. He has taught at leading universities in Japan and Canada, as well as at the Harvard Business School and the Columbia Business School.

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